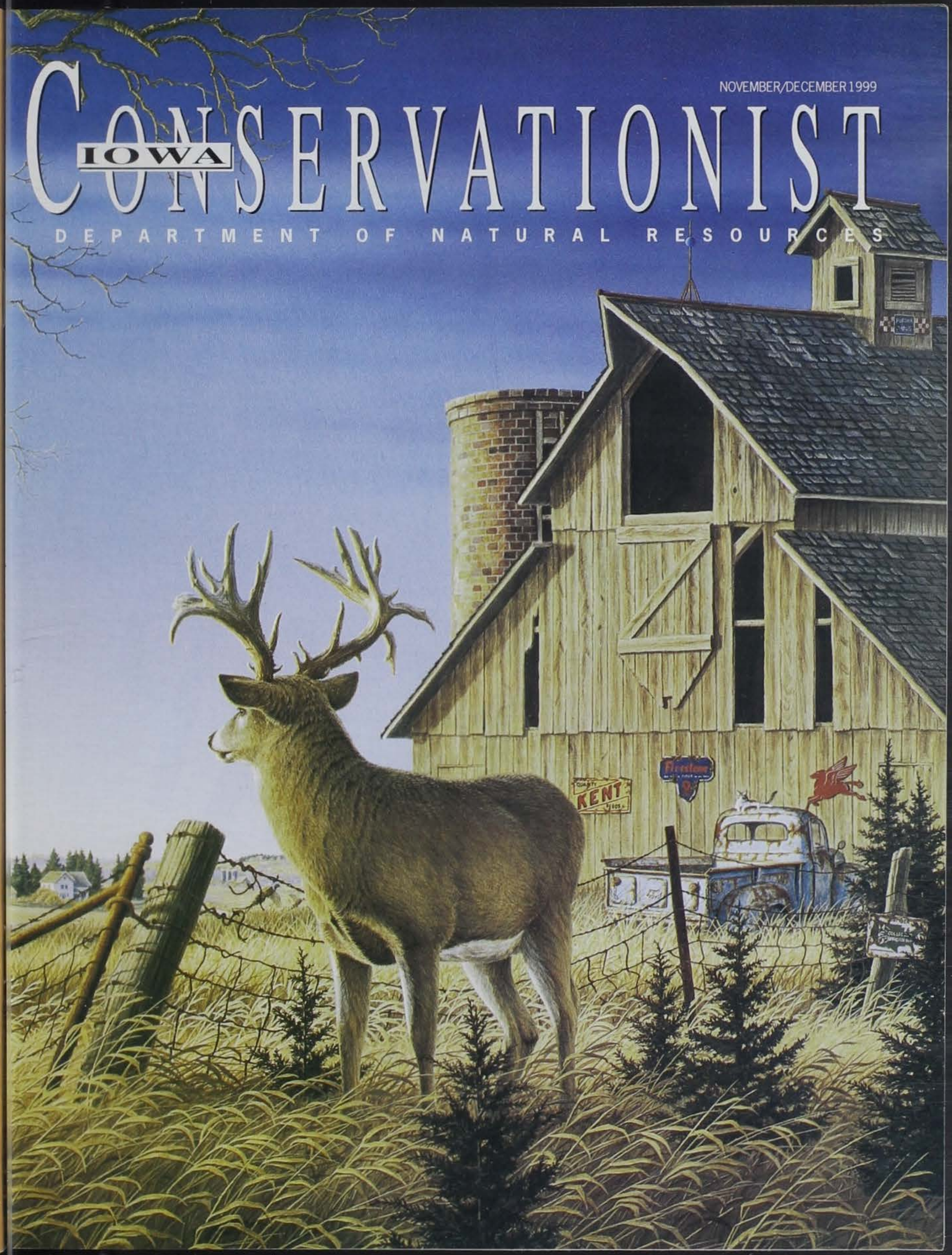
NOVEMBER/DECEMBER 1999

IOWA CONSERVATIONIST

DEPARTMENT OF NATURAL RESOURCES



The money from natural resources license plates goes to the Resource Enhancement and Protection Fund—REAP. Created in 1989, REAP has received the highest national award for conservation programs. So far, it has generated $70 million and rising. To buy a set of the $35 plates, take your current plates and registration to your county treasurer and request the natural resource plates.

IT'S FOR THE BIRDS

REAP In Action

IOWA CONSERVATIONIST

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Volume 58, Number 6

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COVER

Old Rivals II – see page 60 for details on this painting by Larry Zach.

FEATURES

DEPARTMENTS

1 Your first step of involvement in Iowa EarthYear 2000 can be to share your ideas, or make inquiries about our progress on Iowa EarthYear 2000 through our e-mail address: *ey2000@max.state.ia.us*. Also, feel free to contact the EarthYear 2000 Coordinator at (515) 281-8401.

2 Be looking for information concerning the Jan. 21, Iowa EarthYear 2000 Volunteer Conference. Do not miss the opportunity to represent your communit

IOWAEARTHYEAR 2000

The excitement of New Year's Eve 1999 and the birth of a new millennium are just around the corner. So is your chance to begin the millennium with a new and improved commitment to your environment. More than 100 Iowa organizations and thousands of Iowans are planning to do just that.

It is a movement, Iowa's EarthYear 2000, developed with you in mind. Using the 30th anniversary of Earth Day, April 22 and turn-of-the-century celebrations as catalysts, natural resource interests are staging this year-long, statewide celebration. Each of Iowa's 99 counties and most of the more than 900 communities will be involved. Whether it is in your home, neighborhood, community or larger area, there is a place for you to become directly involved in improving your environment.

Want to clean up a stream or take some water samples? How about going with new, energy efficient lighting in your house? Maybe a backyard or neighborhood drive to plant songbird-attracting trees and shrubs? From improving your recycling habits and helping teachers on a nature field trip, to encouraging a neighbor to stop dumping paint in a storm drain, help to accept your environmental responsibilities and join others to make a difference for the future health of our natural resources.

Iowa EarthYear 2000 will lead the nation in the amount of citizen participation for environmental improvement. Of course, the effort needs your help. Keep watching for information from the *Iowa Conservationist*, your local news media and your local conservation organization on how you can be involved. We want to give you credit and use your work as an example to others. There will be plenty of support services to get you started.

3

Attention Volunteers! The Iowa DNR is gearing up for a massive participation program. Look for information on the following pages and in future issues of the *Iowa Conservationist* on how to get involved. In the meantime, if you would like to place your name in the volunteer database, e-mail Diane Ford-Shivvers, DNR Volunteer Coordinator, at *dfordsh@max.state.ia.us*.

Below, volunteers plant the butterfly garden at Bellevue State Park in Jackson County. Three years later (right) both the volunteers and visitors to the park can view the beauty of this generous effort.

Wendy Van Gundy

Ron Johnson

It's in Our Hands

by Diane Ford-Shivvers

Volunteers have always been an integral part of the DNR. Over the years, volunteers have helped clean up the parks, complete renovation projects, improve trails, monitor our waters, conduct hunter safety courses, serve as campground hosts, form friends of the parks groups and teach our young people about our natural and cultural areas. These examples are just the tip of the iceberg when we talk about DNR volunteer involvement.

We're All Owners

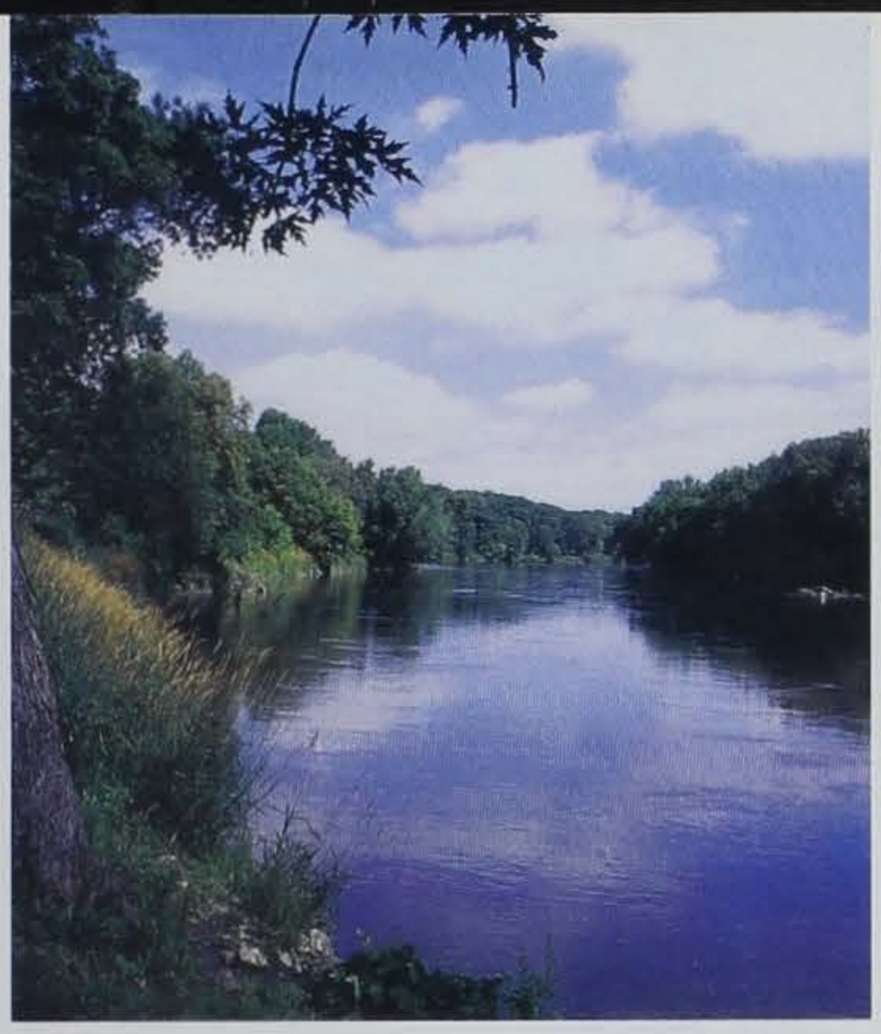
Iowa's environmental future lies in the hands of its citizens. More than 95 percent of our state acres are privately owned. We have more than 71,000 miles of creeks, streams and rivers, and more than 5,400 lakes, ponds, reservoirs and wetlands. Local, state and federal agencies simply can't do all the work that needs to be done, so we rely on you -- the public -- to help conserve, protect and enhance our natural resources.

Iowans have demonstrated their concern and care for our environment in many ways -- conservation practices on the farm; legislation such as the Bottle Bill, the REAP Program and the Groundwater Protection Act; habitat restorations; environmental education in our schools; citizen water quality monitoring; environmental and conservation activism.

We're All Stewards

Earlier this year a major initiative of the DNR was identified and adopted by Gov. Vilsack as one of his four environmental goals -- *Instill in every Iowan a sense of responsibility to serve as a steward of our natural resources.* DNR Director Paul Johnson said, "We're all connected to this land. This department's activities touch everybody's lives, and we need to make it easy for Iowans to volunteer and become involved."

To help reach this goal, the DNR is committed to designing and implementing a vigorous agency-wide, state-wide, sustainable volunteer program. Directing this program will be a new DNR volunteer coordinator. Through the volunteer program and the EarthYear 2000 efforts (see pages 4 and 5), the DNR will seek even more partner



Ken Formanek

The Adopt-A-Stream program is designed to recognize individuals or groups who take action to protect or enhance our water resources. These individuals and groups are stimulating public awareness of this vital resource through river clean-ups, water quality monitoring, tree and grass plantings, streambank stabilization, hiking trail development, fisheries habitat improvement, fishing access improvements and outdoor classroom lessons for kids. Often groups use a project as a community-building event by inviting other groups to participate and having social activities after the event.

To get involved in the program or for additional information contact Michelle Wilson at (515)281-8675, e-mail mwilson@max.state.ia.us, or write to Iowa DNR, Wallace Building, Des Moines, Iowa 50319-0034.

Robin Fortney

Mark Edwards

Mark Edwards

AmeriCorps volunteers aid in ecosystem management with a prairie burn at Waubonsie State Park in Fremont County. The DNR is currently working to expand the number of its AmeriCorps volunteers.

Student Environmental Coalition volunteers from Webster County schools work on trails at Dolliver Memorial State Park.

DNR

No matter what age, volunteers are one of Iowa's most valuable natural resources. From adults helping with a Toxic Clean-up Day in Boone County to youngsters recycling milk jugs at their school, their work makes a difference and we are all the beneficiaries.

DNR

volunteers, and will work to expand opportunities that fit the various interests of Iowans.

Building Connections

The value of volunteers goes way beyond the work performed. Volunteers gain a deeper understanding, knowledge and appreciation of our natural resources. They become informed activists and ambassadors for the DNR, and our links to their communities. Young volunteers connect to Iowa -- to this land -- and that may keep them in this state after graduation. Volunteers can say what needs to be said, and wield the power of constituents. And sometimes, certain volunteers may become the major funders of our programs.

We Can't Do It Without You

Pictured here are just a few examples of committed Iowans making a difference in their own lives, their communities, their state and their world.

To make a difference, to lend a hand, to become a part of this valuable resource, contact Diane Ford-Shivvers, DNR Volunteer Coordinator, at dfordsh@max.state.ia.us or write the Iowa DNR, Wallace State Office Building, Des Moines, Iowa 50319-0034.

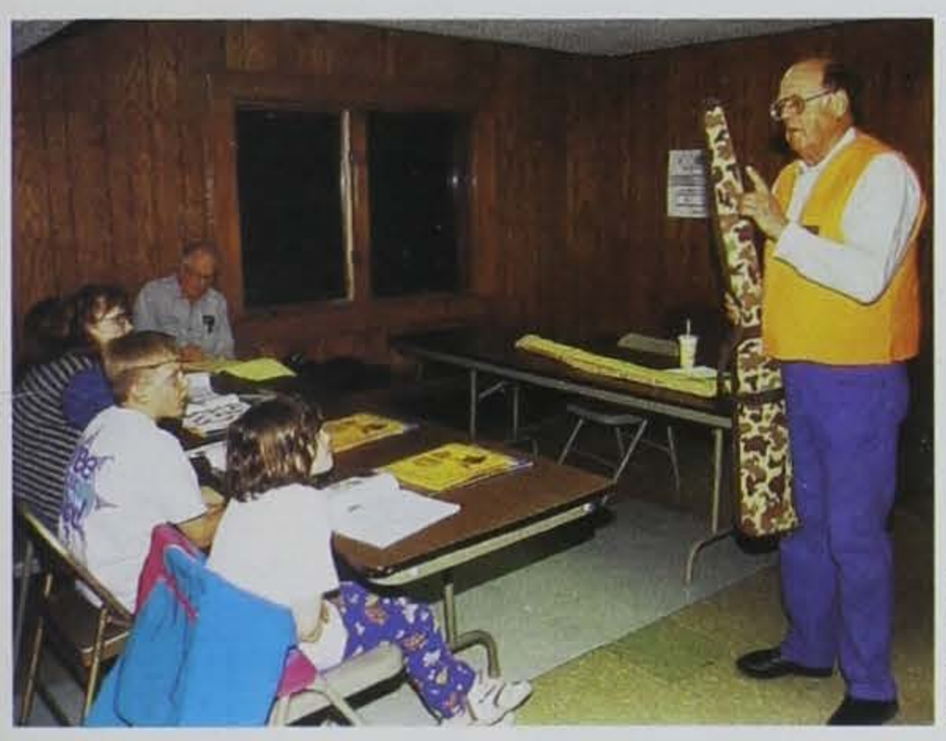
Kevin Baskins

Iowa's water resources are of premier importance its citizens. In the future, through the Iowater program, volunteers will share responsibility with DNR personnel in monitoring Iowa's water quality.

Diane Ford-Shivers is the new volunteer coordinator for the department in Des Moines.

Ken Formanek

Volunteers enjoy a day of clean-up at the DNR's State Fair building in Des Moines.



Ken Formanek

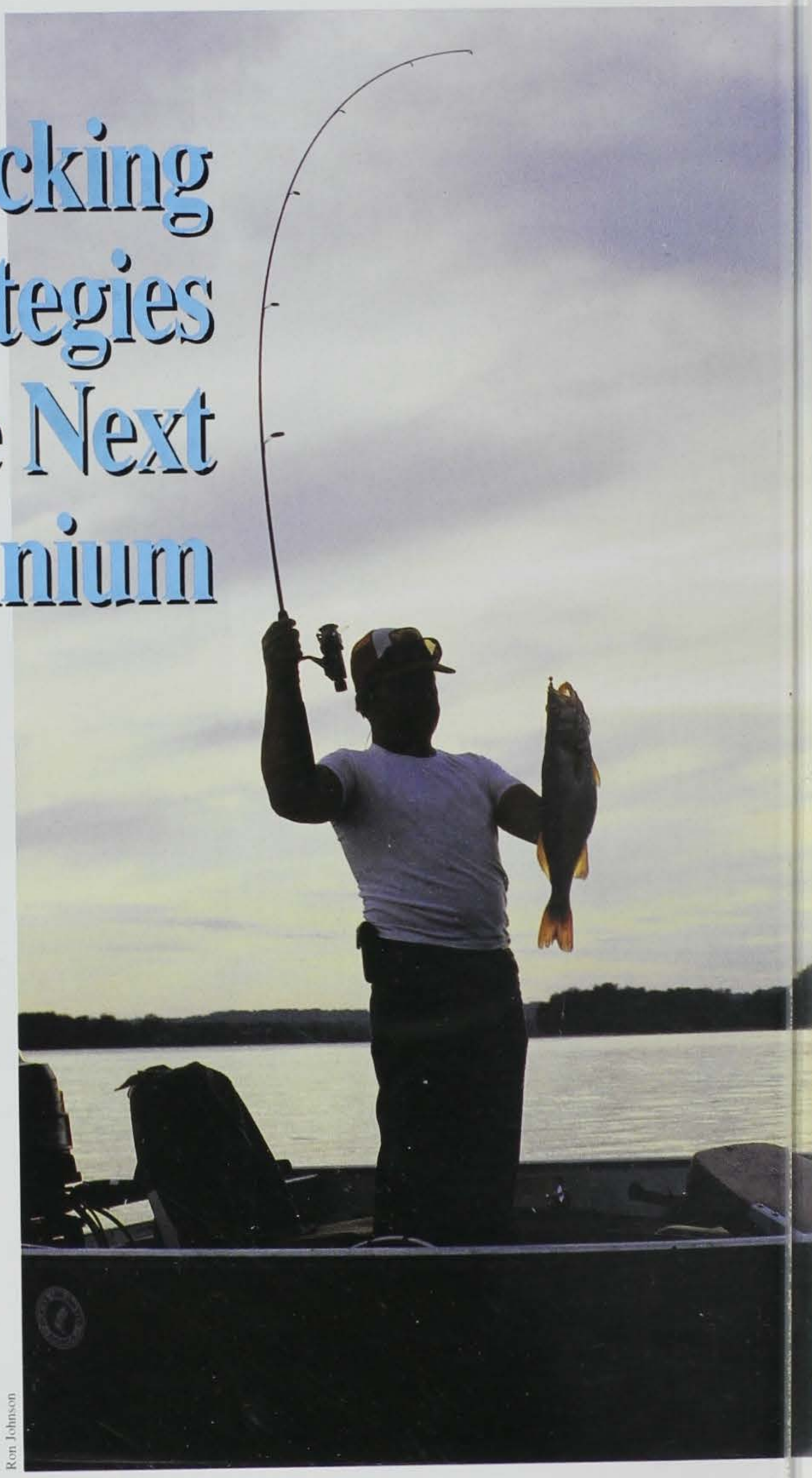
The Law Enforcement Bureau of the DNR is responsible for six recreational safety programs, using volunteer instructors. The programs are Hunter Education, Bowhunter Education, Snowmobile Safety, All-Terrain Vehicle (ATV) Safety, Boating Safety and Fur Harvester Education. A breakdown of volunteer instructors for each of these programs is Hunter Education -- 1,700, Bowhunter -- 275, Fur harvester -- 125, Snowmobile Safety -- 275, ATV Safety -- 30 and Boating Education -- 50. The total number of instructors -- 2,450 volunteers.

Students certified in 1998 by volunteer instructors include 14,000 in Hunter Education; 700 in Boating Safety; 750 in Snowmobile Safety; 425 in Bowhunter Education; 75 in Fur Harvester Education; and 30 in ATV Safety. Without these volunteers it would be almost impossible to achieve the level of participation for all of these safety programs.

Lowell Washburn

With a handful of wildlife biologists and hundreds of wildlife species in the state, volunteers play a vital role in a number of survey programs.

Fish Stocking Strategies for the Next Millennium



Ron Johnson

"When is the DNR going to stock the lake?" It's a common question. There is no doubt stocking is recognized as an important tool used in creating and maintaining Iowa's quality fishing resources.

Without stocking we wouldn't have walleye fishing in most Iowa waters. Without stocking we wouldn't have catfish in so many of our ponds and lakes. Some species, such as muskellunge, are stocked in state lakes to provide a trophy fishery. So yes, stocking is a very important tool. However stocking, like any tool available to fisheries biologists must be used wisely. It is not the solution to all problems and, if used improperly, can even cause more.

A major goal for fisheries biologists is getting the most value out of fishery dollars. The Iowa DNR has goals for stocking fish in the state. They might be very specific, such as providing a walleye fishery that enables the angler to catch one walleye per hour. If the goal is not reached in a given time period, the DNR may need to reevaluate the management plan and change the stocking strategy.

The two main concerns when stocking fish are how big a fish must be to survive in its environment and how many fish are needed to meet the goals set by the department? The general answer is we want to stock the smallest fish at the lowest density possible while providing a successful fishery.

Simple? Not really. Every lake or stream is different, therefore stocking strategies vary widely.

The simple rule is the smaller the fish, the cheaper it is to stock. That's why fry (fish that are only about 1 to 2 days old) may be the most cost-effective. However, stocking frys doesn't work for many species.

For example, bluegills, crappies and largemouth bass have the ability to spawn in a variety of habitats. These species should reproduce in most Iowa lakes. If spawning habitat for large-mouth bass is unlimited in a certain lake, yet these bass aren't successfully reproducing, then some environmental condition is limiting the population. In other words, for whatever reason the lake can't support tiny largemouth bass. Therefore, it would do no good to stock largemouth bass fry. The DNR could stock literally millions of fry and never see any return.

Fry (below) are the cheapest to produce and can be stocked in lakes or raised to larger sizes.

DNR

by Mark Flammang

Walleye are prime candidates for fry stocking since most Iowa lakes lack the required rocky spawning habitat of walleye. The DNR can "help" nature along by stocking small fry. Stocking these tiny fish actually mimics what would have resulted from successful spawning. If environmental conditions are suitable, walleyes will survive and grow.

Whenever fish are stocked, some — and often many — will die. The key to successful stocking is to stock fish of a suitable size and density to ensure good survival rates.

How big do fish have to be to survive?

Stocking new or recently renovated lakes or ponds yields the best results. When a lake is free of fish, the system is

revitalized. It is an excellent habitat for a small fish. Food, in the form of plankton and insects, is plentiful and predators are either nonexistent or very minimal. Fish stocked in new lakes have an excellent chance of survival.

Mark Flammang

The key to stocking is to use the right size fish in the proper lake.

Therefore, it would not be cost efficient to stock large fingerling fish in a pond such as this. It is not necessary to stock a fish that costs more to raise when a smaller fish would have the same chance of survival. Instead, we will stock the smallest fish available and save the larger fish for lakes with greater survival challenges.

Iowa's walleye

Walleyes are highly prized in the state. From the Iowa Great Lakes to Lake Rathbun, from 12-Mile to the Mississippi River, Iowa anglers spend a great deal of time in hot pursuit of these fish. As such, the DNR spends a great deal of time, money and effort managing the species.

Walleye are an unusual species in that fry stockings are often quite successful. But a larger fish stands a better chance of survival than a tiny little fry, right? Probably. But when one examines the success of any stocking program, it is helpful to look at what the fish actually cost. A single walleye fry might cost approximately one-half cent per fish. Conversely, an 8-inch walleye raised at a fish hatchery might cost nearly $1 per fish. The math is easy. If fry work, even on an extremely limited basis, they are a more cost-effective choice. However, if the fry won't survive it does no good to stock them. It is up to the fisheries biologist to determine what size fish need to be produced to develop a cost-effective fishery.

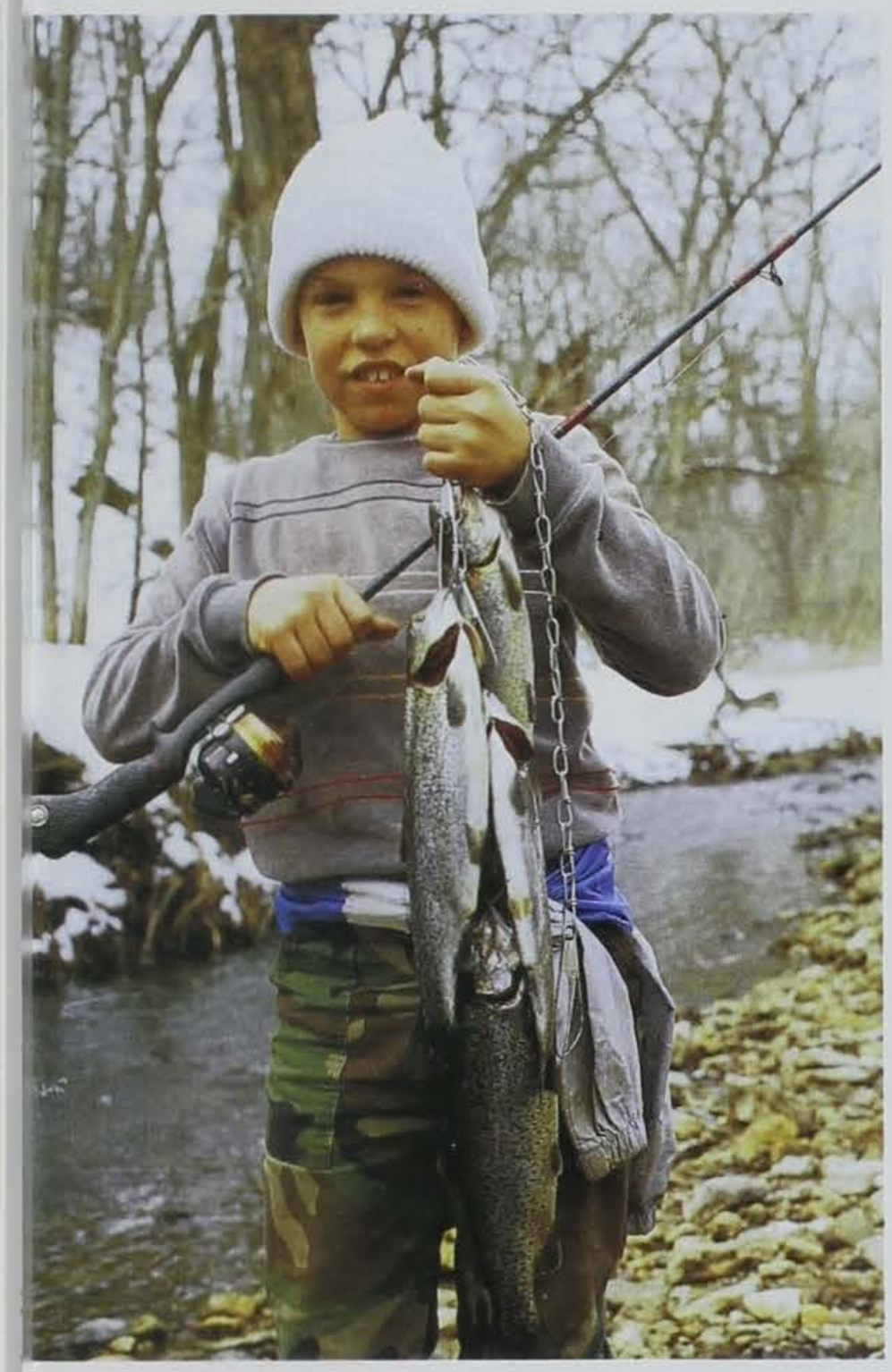
Developing a stocking program suitable for each specific lake doesn't happen overnight. For example, Lake Sugema is a 574-acre lake in Van Buren County. The lake was completed and filled in 1993. Saugeye (a hybrid between walleye and sauger) were stocked the same year. These fish did well in the new lake environment. However, in the years that followed, the DNR stocked 2-inch saugeye annually, only to find the fish did not survive.

Simply put, the DNR was stocking fish too small to survive in the existing environment. In the case of Sugema, a very "predator-rich" lake at the time, it is likely crappie and largemouth bass were eating these 2-inch fish soon after stocking.

A study on a South Dakota lake containing a high-density of crappies showed 2-inch fish were not suitable for stocking. In that lake, nearly half of the stocking (80,000 2-inch walleye) were being eaten within the first 24 hours by the hungry black crappies. A different alternative had to be found. The answer was to stock a larger fish.

However, if those biologists had not investigated stocking the cheaper smaller fish, they would never have known these fish would not survive.

The same situation exists at Lake Sugema. The DNR is currently evaluating the stocking of both 2-inch and 7-inch walleyes in that lake and the results indicate 2-inch fish don't survive in sufficient numbers to support a fishery. Instead, the 7-inch fish must be used to avoid predation.



Clay Smith

Iowa's trout

The Iowa trout stocking program has two major points. In some streams "catchable-size" fish are stocked, often referred to as a "put-and-take" fishery. The fish, generally about a half-pound and about 10 to 12 inches long, cost approximately $0.75 per fish to produce.

Smaller trout are also stocked with the belief they will remain in the stream for an extended period of time and grow to catchable size. These fish are stocked as 3-inch fingerlings and cost approximately $.05 a piece to produce.

Some of Iowa's more popular and heavily fished trout streams are "put-and-take" fisheries. Because they receive more angling pressure, the DNR's "put-and-take" philosophy is to manage the stream for more fish in the creel. The "put-and-grow" streams usually have lighter angling pressure, yet possess some excellent habitat thus allowing the fish to thrive.

Iowa's largemouth bass

Largemouth bass thrive in a variety of habitats, however there are occasions when they need to be stocked. In some instances, for example, it may be a simple case of declining numbers.

A good example is Lake Icaria, where over the past several years bass numbers have declined. Part of the decline can be attributed to an increase in the number of yellow bass in the lake. The yellow bass is a close cousin of the white bass and is a small but veracious predator. It is capable of producing tremendous year classes which can literally control reproductive success of largemouth bass and walleye. By stocking a 5-inch largemouth we can establish a successful year class which may, in time, actually help limit the overabundant yellow bass.

Iowa's channel catfish

More Iowans prefer to catch channel catfish than any other species, therefore the DNR spends considerable effort managing catfish in many state lakes. However, catfish reproduction and survival is limited in most lakes. Channel catfish are a cavity-spawning species and prefer large holes in logs or rocks, which many lakes lack. If the habitat doesn't exist, the spawning will likely not occur.

Even if spawning does occur, these small fish are faced with many challenges. Small channel catfish are often preyed upon by largemouth bass, therefore it usually does little good to stock small channel catfish in Iowa lakes. Catfish are generally stocked at 7 inches, with good survival rates. However, some lakes still have little catfish survival, even with stocking larger fish. The largemouth bass is too efficient a predator.

The answer? Stocking bigger fish. In order to do this, the DNR often forms cooperative agreements with county conservation boards, cities or state parks to raise catfish in cages onsite. The DNR delivers the fingerlings in the spring and cooperators feed the fish daily throughout the summer. The cages keep catfish in and predators out, resulting in 10- to 12-inch catfish by fall. In almost all cases this size of fish is large enough to avoid being eaten by the bass.

The two muskies below have been fed different diets. Believe it or not, the dark bars on the bottom fish actually help camouflage the fish in the water. The coloration differences are due to differences in diets they are fed in the hatchery.

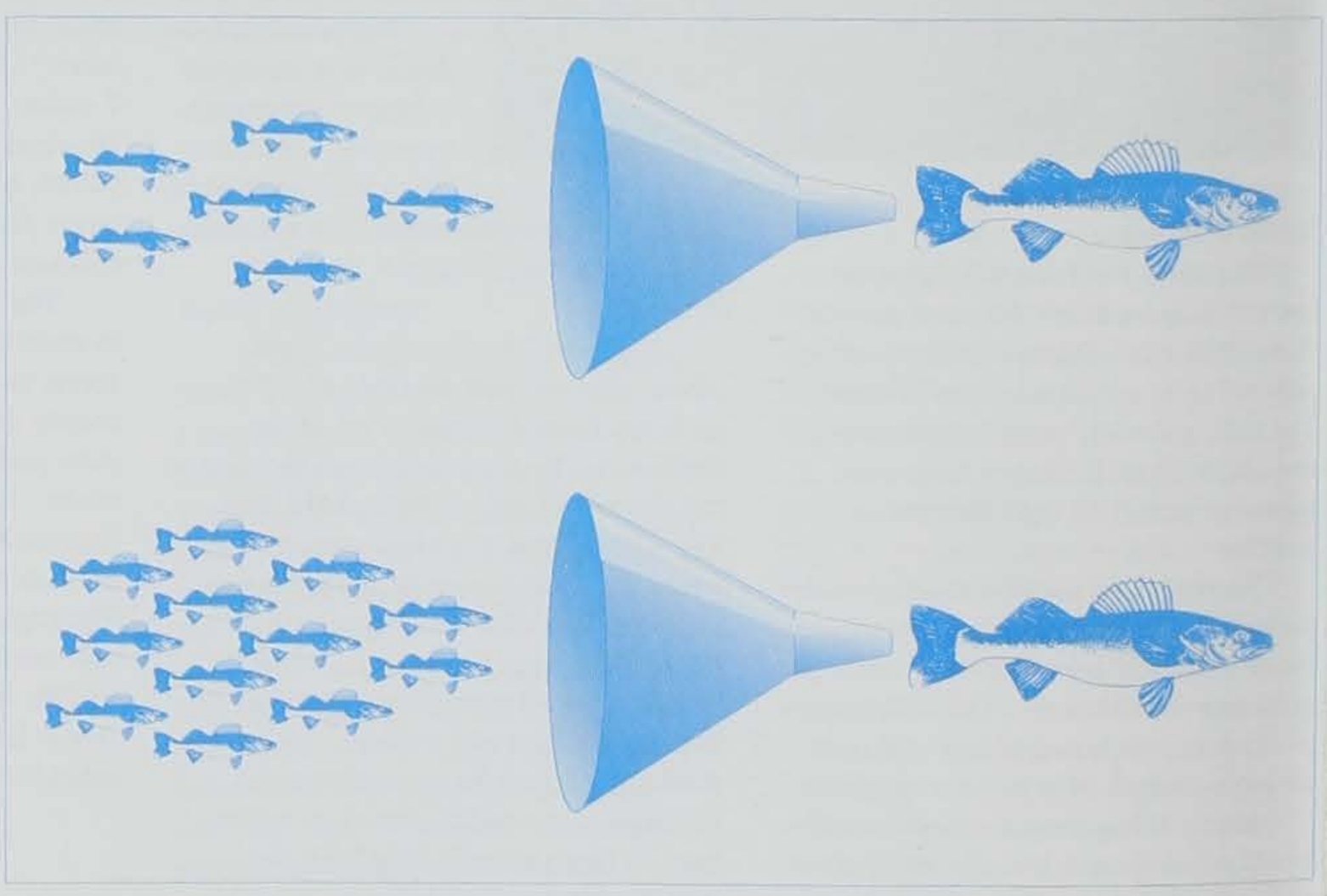
Mark Flammang

Iowa's muskellunge

The muskellunge is a funny creature. Even in lakes considered excellent musky fisheries, numbers are very low. This is due, in no small part, to the shear size of this toothy predator. Iowa lakes just don't support a lot of muskies. Any musky angler will tell you a good day of musky fishing might include a strike or two. Despite the difficulty in catching one of these fish, it is still an extremely popular species.

Like catfish, small muskies often do not survive well when stocked into predator-rich environments. Several methods have been attempted to improve musky survival. Experiments are even underway within Iowa to improve musky feed in our hatcheries. These feeds are specifically developed to improve the camouflage of this species in lake environments. However, one of the most important tools for successfully stocking muskies is, yet again, using larger fish. Recently the DNR has adopted a musky stocking program in which fish are started in the hatchery on artificial feed and then finished on minnow diets. Instead of stocking in the fall, we now overwinter these fish in the hatchery and stock them in the spring. By stocking in the spring, we allow aquatic vegetation to grow and give these highly prized fish a place to hide. In addition, more food becomes available to the muskies and other would-be predators, giving these predators something other than small muskies to eat.

Stocking more fish at a time does not necessarily mean you will get more larger fish in the end. Biologists have to find the best stocking density to provide enough fish at the most cost-effective rate.



Stocking Density

Stocking density is another important factor in fisheries management. The phrase "more is better" is not always true when it comes to stocking density. Remember, the goal is to stock fish in the most cost-effective manner.

What if we had a lake that could tolerate no more than 10,000 young walleyes a year? Our current stocking is 12,000 fish per year. While we don't know exactly how many fish a lake can sustain, we are able to make some generalizations. By stocking 12,000 fish we have left room for natural mortality the first year and still have developed a year class that gives us the maximum bang for our buck. What happens if, in this same lake, we change our stocking to 30,000 fish? It can still only tolerate 10,000 fish. In essence, we have thrown away 20,000 walleyes that could have been more effectively used elsewhere.

Lowell Washburn

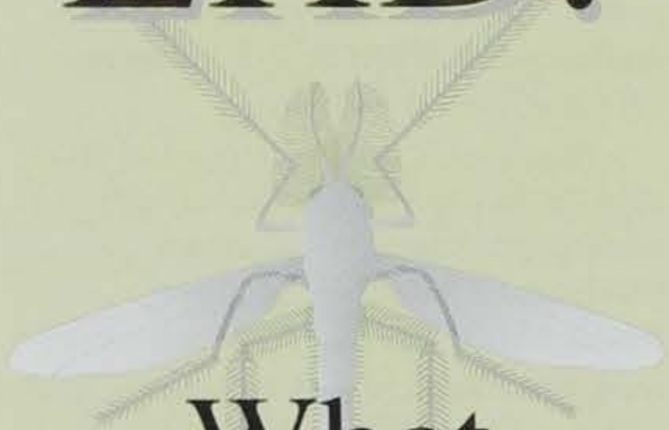
Stocking density in a put-and-take trout fishery is based on how much angling pressure a given stream receives. If the stream is heavily fished, it will receive larger and more frequent stockings than one that receives less angler pressure. A put-and-grow stream is stocked and later surveyed to see how the fish are performing. If the habitat within the sampling area looks very conducive to trout, yet relatively few fish are caught, the DNR will often increase the fingerling stocking to better use the resource.

Fish stocking -- while simple to show people -- is a complex matter. It requires a well-developed hatchery with sufficient production space. It requires fishery management and research biologists to intensively study each lake requesting fish. There are no real cookbook- type approaches available. We can make generalizations about lakes, but in actuality, each lake is different and one size does not fit all.

Only by sampling these lakes do we get an indication of how successful our stocking efforts have been. Some lakes or rivers require a larger initial investment, by requiring larger fish to be stocked. Without this added investment, the fishery would not exist. It is pointless to throw money down the drain by stocking fish that won't survive. Our job is to first determine if stocking is necessary and then match the proper stocking technique with each individual lake or stream to produce the most cost-effective fishery possible.

Mark Flammang is a fisheries management biologist at the DNR's Rathbun Fish Hatchery.

EHD: What happened and why?



Article by Willie Suchy and Dale Garner
Photos by Roger A. Hill

The first phone call came late in the evening on Labor Day, last year. Rod Pickens, the conservation officer from Bloomfield, had found a couple of dead deer near a pond and was wondering if we had heard about deer dying anywhere else. We told him no, but that we would let him know if we did. By the end of November we had received reliable reports of nearly 500 dead deer in what proved to be the largest and most widespread outbreak of EHD (Epizootic Hemorrhagic Disease) in Iowa history.

What is EHD and why did the outbreak occur? What impact will it have on deer numbers this fall? Will it show up again?

The Disease

EHD and bluetongue, collectively called "hemorrhagic disease," are closely related viral diseases that can infect many wild and domestic ruminants (cud chewers). White-tailed deer and pronghorn antelope are particularly susceptible to EHD. Bluetongue can affect whitetails and pronghorns, but is also found in mule deer and bighorn sheep. Elk can carry both diseases, but they are usually not severely affected by EHD. Both diseases can infect domestic animals. EHD does not seem to severely impact cattle or sheep, but sheep may develop severe illness when infected with bluetongue. Cattle and elk may both be long-term carriers of the virus since they often survive the infections. Deer and sheep are more often short-term carriers because 80-90 percent of those infected die.

Transmission

A tiny biting insect known as a midge appears to spread the disease. The scientific name for the midge is *Culicoides*, and *C. variipennis* is the particular species responsible for transmitting EHD in Iowa. All that is needed for transmission is a source for the disease, the midge, and susceptible animals. Typically, midge populations peak in late summer and early fall and last until the first killing frost.

Although some deer die from EHD each year, widespread outbreaks occur irregularly. Severe outbreaks occur when dry weather concentrates deer around a limited number of water sources. Infected midges at just one of these water holes can transmit the disease to larger numbers of deer. Deer densities, however, do not have any influence on whether an outbreak will occur; other than if there are more deer in an area, more will die.

Signs of Infection

Outward signs of infection in live deer depend partly on the potency of the virus and the duration of infection. Many infected deer appear normal or show only mild signs of illness. However, when illness occurs, the signs change as the disease progresses. The first sign of infection is a fever. Animals may have a swollen head, neck, tongue or eyelids. As the disease progresses animals may lose their appetite and wariness. They may also bleed from the mouth or nose, become dehydrated, and often have increased respiration rates and a rapid heartbeat. Blood may also show up in the urine and feces. EHD can be fatal in as little as 8 to 36 hours after onset of the fever. Many dead deer are found in or near water, probably in an attempt to lower body temperature. Examination of a carcass may show ulcerations of the mouth and tongue, and there may be a good deal of internal hemorrhaging as well. This hemorrhaging is a diagnostic symptom of the disease.

Deer that survive the disease may develop secondary infections. Often the deer is emaciated and in poor shape because ulcers in the mouth keep the deer from eating properly. Lower leg joints are sometimes swollen and hooves may show signs of infection and/or may be sloughed off. All ages and sex of deer are equally susceptible to the disease and are as likely to die from it.

Health Risks to People

Humans are not at risk from handling deer infected with EHD or bluetongue, eating venison from infected deer, or being bitten by infected midges. How-

ever, deer that develop bacterial infections or abscesses secondary to hemorrhagic disease may not be suitable to eat.

EHD Outbreaks in Iowa

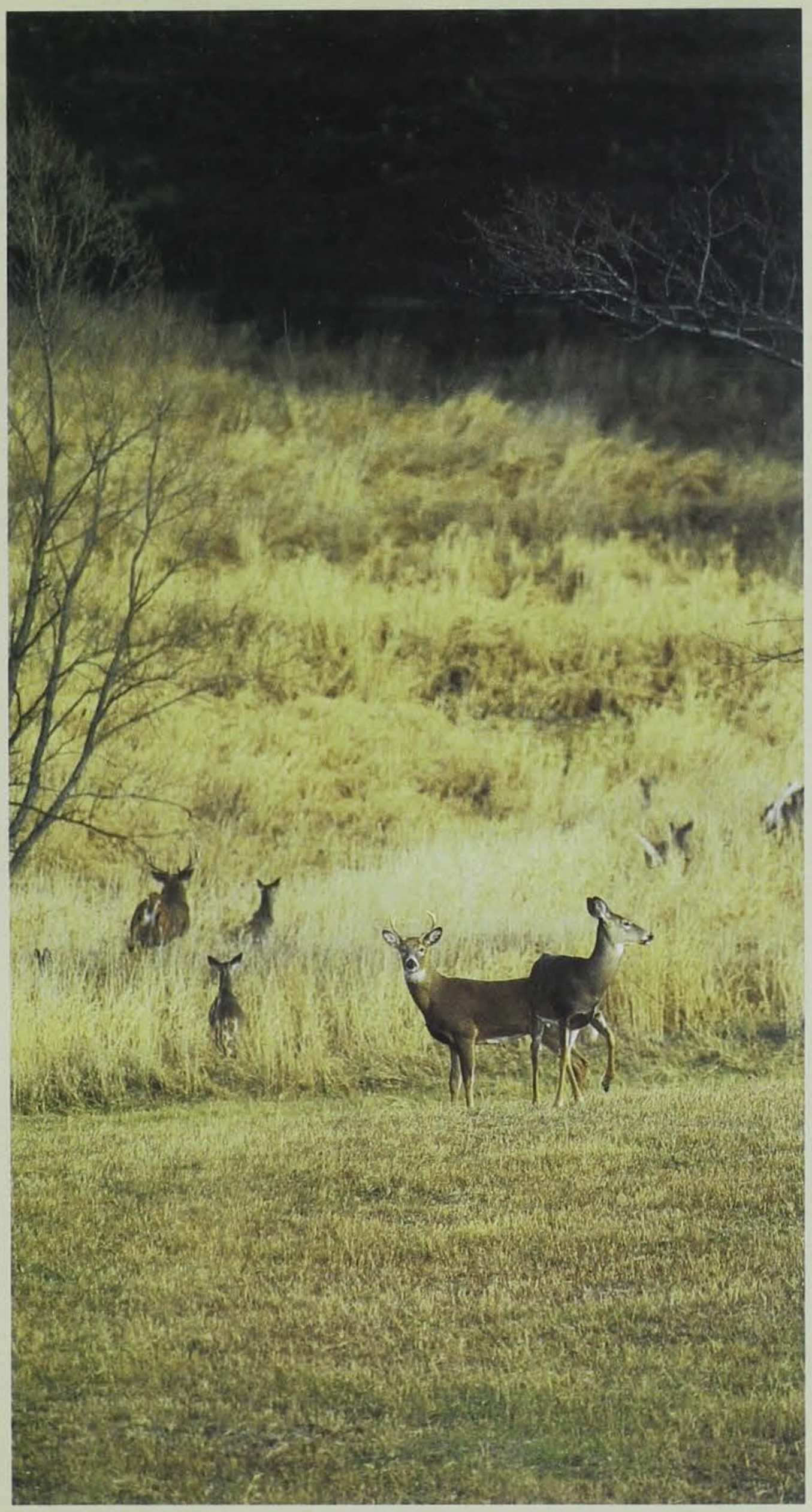
Although we get a few reports of EHD every year, the last major outbreak of EHD in the Midwest was in 1988. While we had a few dozen reports that year, Missouri estimated it lost up to 20 percent of the deer in some areas, especially in the northern portion of the state. Most of the 1988 reports in Iowa came from the western part of the state. In 1995, Nebraska and South Dakota reported heavy losses in the western parts of those states and Iowa had several reports of dead deer in the counties along the Missouri River.

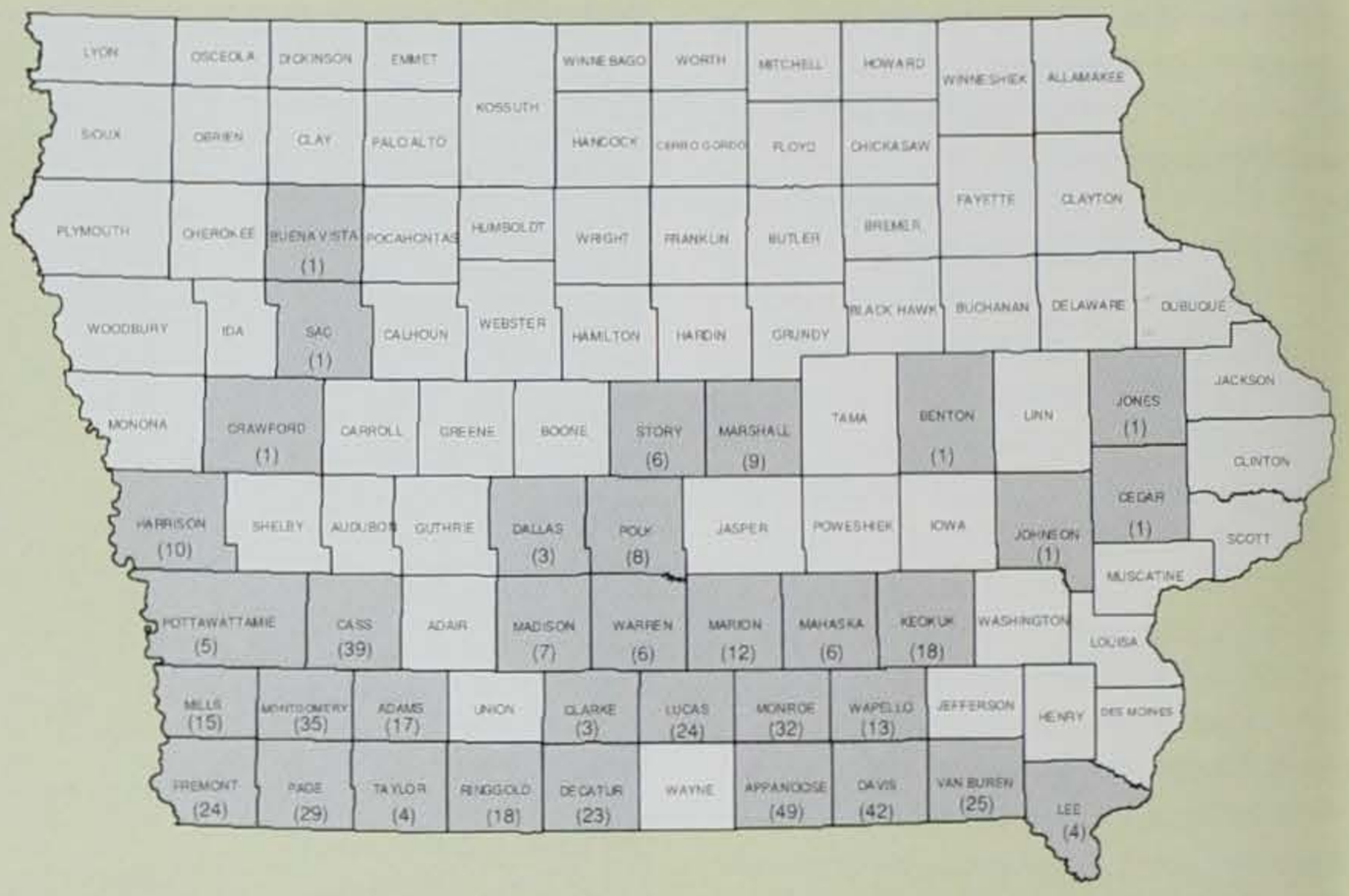
Last year was somewhat unusual with reports starting in September and continuing through much of November. The warm fall weather probably allowed midges to survive much later than usual. Most of the reports we received were of one or two dead deer found, usually near water. However, larger groups of deer were found in fields during crop harvest. Often the carcasses were too decomposed to determine much, but several did have the characteristic lesions. Since most labs are not equipped to test for EHD and it can be difficult to isolate and identify, widespread testing was not done. Samples from a couple of deer were sent to labs to confirm EHD but results of those tests were inconclusive.

The accompanying map (page 18) shows the number and extent of the cases reported last fall. Most of the cases were in southern Iowa, although we did receive several reports as far north as Story and Marshall counties. Two areas seemed to generate a lot of reports; one was in southeast Iowa around Appanoose and Davis counties, the other was farther west around Page and Montgomery counties.

These areas are being monitored closely to see if the disease had a lasting impact on deer numbers.

The number of deer killed on the





Counties where deer with symptoms of EHD were reported in 1998. The total number of dead deer reported is in parenthesis.

highways in the 16 counties from Page and Montgomery to Jefferson and Van Buren has been declining for the past two years (page 19). The graph shows the number of roadkills increased steadily from 1978 to 1988. After remaining steady for a couple of years, the number of roadkills increased again until 1996 and have gone down the past two years. However, the number of cars and the number of miles driven on Iowa's highways have also increased by nearly 50 percent during this same time period. The trend in deer numbers can better be shown by "adjusting" the roadkill for the number of miles driven on the rural highways.

The kill-per-billion-vehicle-miles (kpbm) index peaked in 1988, remained steady for a couple of years and then increased to a new high in 1996. The kpbm index has also declined in the last two years. If the current rate of decline continues (the dashed lines), the kpbm next year should be just a little lower than the average in 1987 and 1988. If we lost 10 percent of the deer in this area to EHD and hunters kill the same number of deer during the next two seasons (the dotted lines), the index will be about 20 percent lower.

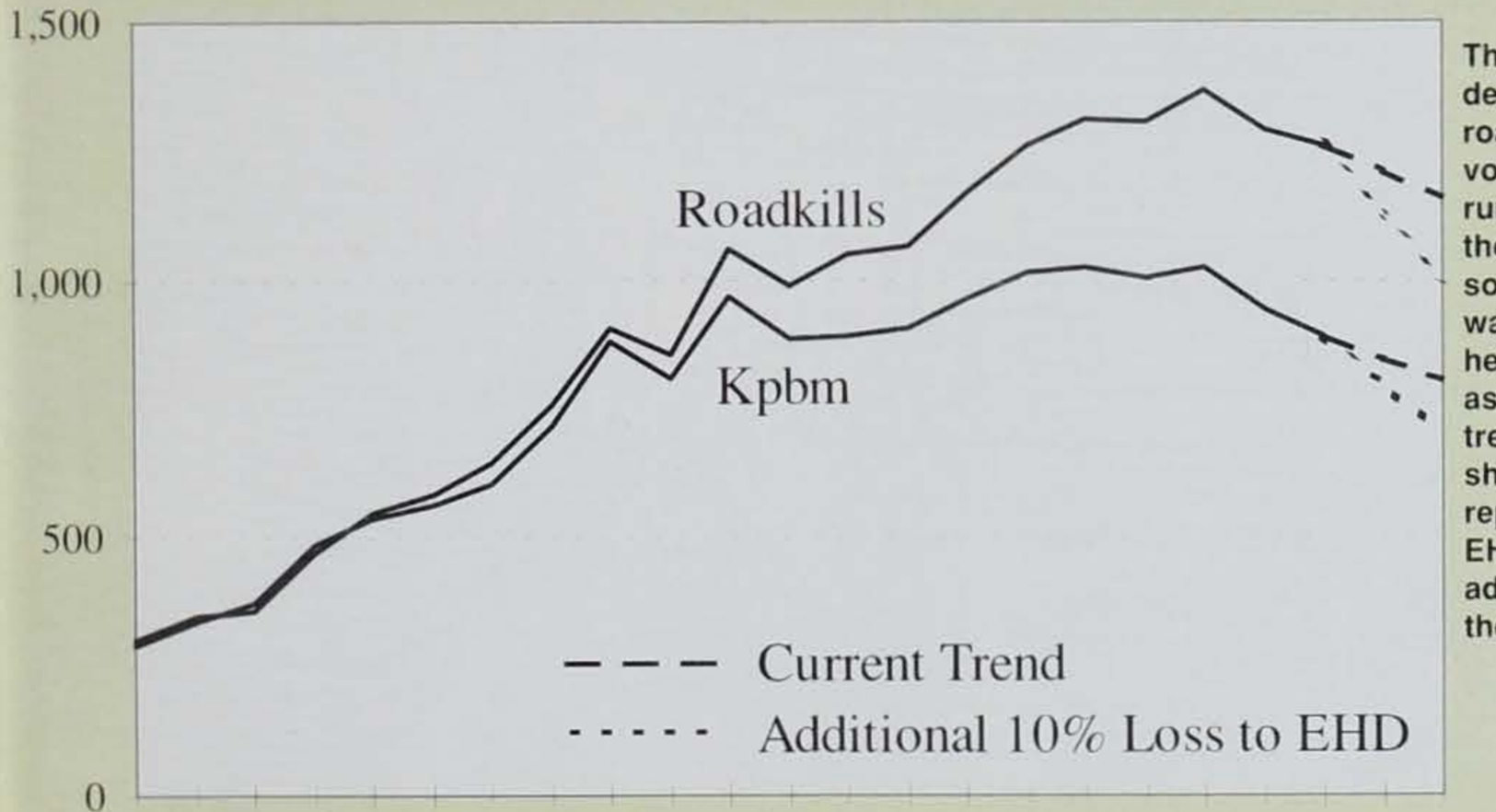
Aerial and spotlight surveys indicated deer numbers were down somewhat in these areas. But these areas have been part of the special antlerless zones and deer numbers should have been going down anyway. We will need to see if they go down enough to reach the number people are willing to live with in these areas.

This Year

An EHD outbreak can severely impact local deer numbers. A high proportion of the deer in a local area may die from the disease while deer from a mile away go uninfected if they don't use the water source where the midges live. Dispersal this spring and new fawns may mitigate the impact to a degree, but some people could find a lot fewer deer than they expect this year.

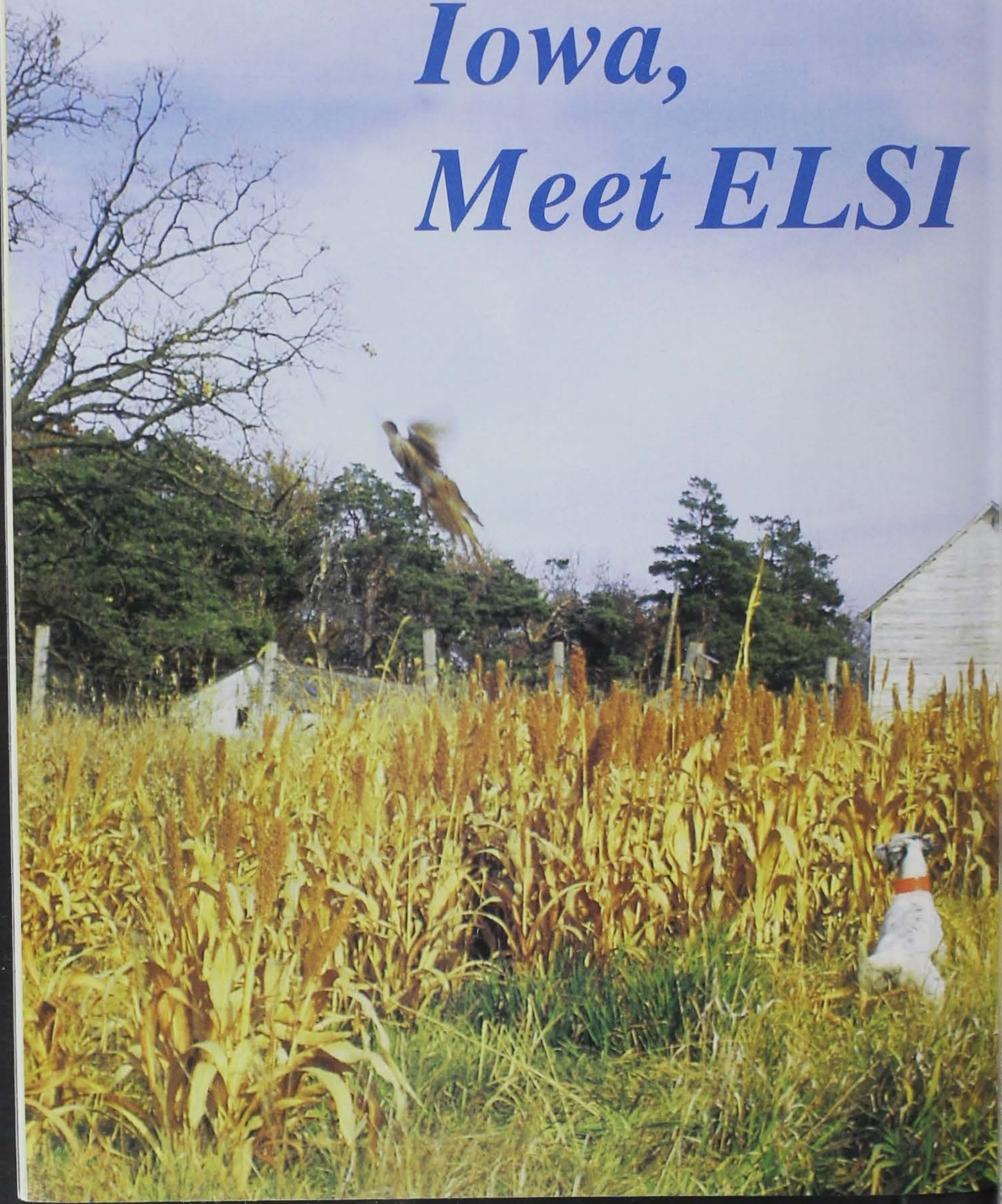
Although conditions were right for another outbreak this fall, it didn't happen. And with recent hard frosts, the threat is over. Midges cannot survive below frosts. It appears Iowa dodged the bullet.

Willy Suchy and Dale Garner are wildlife research biologists for the DNR at Chariton.



The number of roadkilled deer and the number of roadkills adjusted for the volume of traffic on the rural highways (kpbm) for the 16-county area in southern Iowa where EHD was reported in 1998. The heavy dashed lines assume that current trends continue. The shorter dashed line represents the impact of EHD assuming that an additional 10 percent of the deer died.

Iowa, Meet ELSI



ELSI will change the way hunters and anglers buy licenses

by Alan Foster

The call came in mid-October, more than a month after the deadline to turn in deer hunting applications. The frantic caller explained he had just found his application envelope — signed, sealed and undelivered. He had found it in his briefcase, among a stack of low-priority work memos. He remembered completing the application a month before the deadline, and, figuring he had plenty of time, placed it in his to-do stack.

"Is there anything I can do?" he asked.

"I'm sorry sir, but all application periods are closed," the DNR employee answered. "There is nothing I can do."

For the first time in 20-some years, the man would be sitting at home in mid-December.

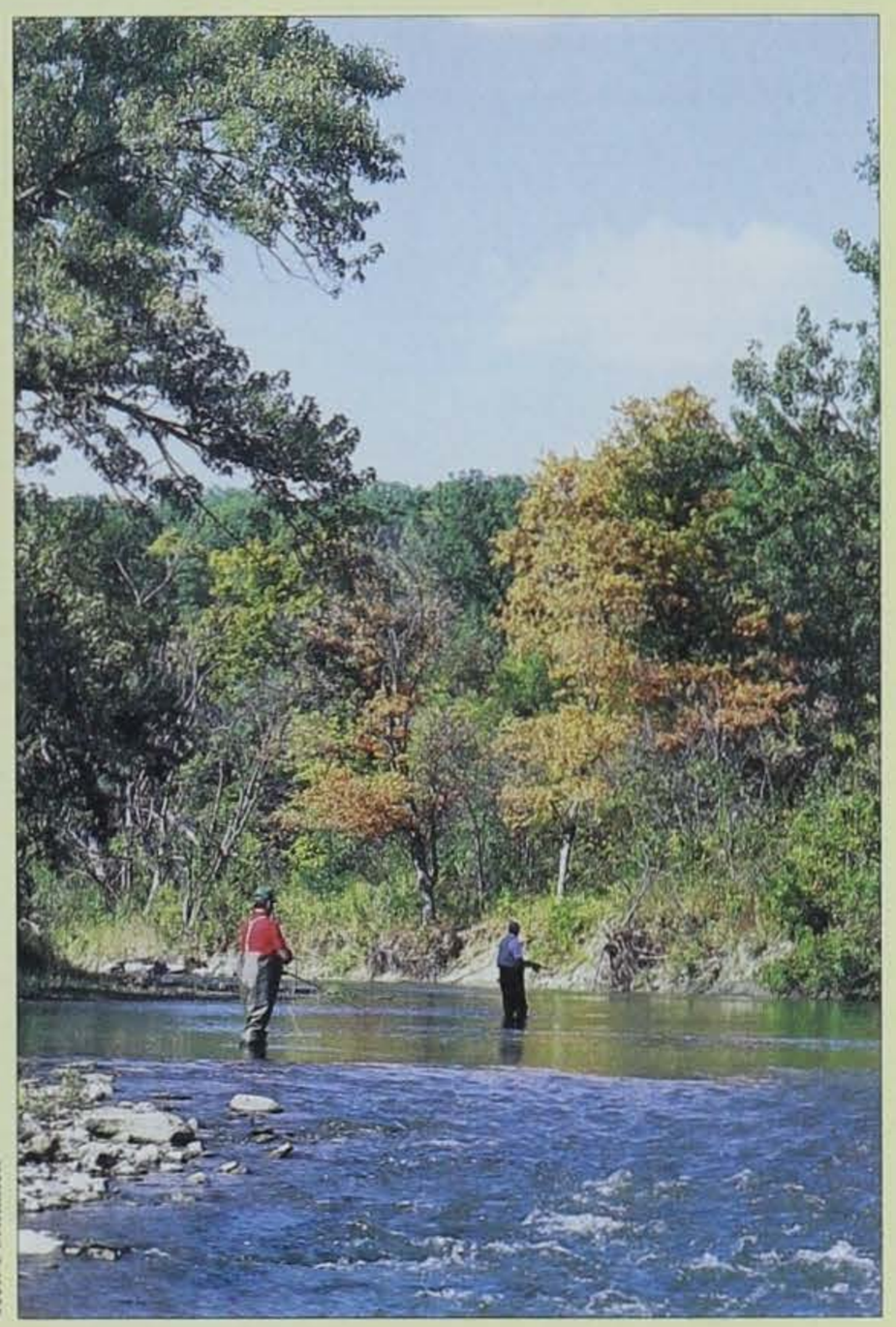
Unfortunately, this is an all-too-common occurrence. It happens every year. For whatever reason, whether it be forgetfulness, procrastination or unfortunate oversight, a license application fails to make it to its intended destination and someone is left disappointed.

All that could change, though, with an innovative new system nearly all states are studying and many are adopting. Electronic licensing, a system where most licenses and fees can be purchased over the counter, is coming to Iowa, and it could revolutionize the way hunting, fishing and trapping privileges are sold.

Meet ELSI — Electronic Licensing System for Iowa. As the name indicates, ELSI is Iowa's tailor-made version of electronic licensing. It could be in selected license vendors as early as this spring, and be fully operational by early summer. For the nearly 600,000 people who hunt, fish and trap in Iowa, ELSI should make purchasing a license quicker, easier and more convenient.

"Automation of the hunting and

Ken Formanek



Ken Formanek

Hunters (left) and anglers (right) should find it easier and more convenient to purchase licenses through ELSI.

fishing licenses will have several benefits to anglers and hunters in the state," said Rich Smith, who as the ELSI project coordinator for the DNR has for more than two years studied similar systems in other states and planned for its implementation in Iowa. "We believe the citizens of Iowa will appreciate the ease and flexibility of electronic licensing both to the purchaser and the seller."

Once in place, ELSI will eliminate the decades-old system of handwritten licenses. By doing so, several benefits will be realized for both the vendor and the customer, as well as the DNR.

Arguably one of the greatest advantages ELSI provides to the customer is the ease and convenience of "one stop shopping." Virtually all hunting, fishing and trapping privileges, including deer and turkey licenses, will be available through electronic licensing.

The ability to purchase deer and turkey licenses over the counter alone is a benefit most Iowans will find appealing. Conceivably, a hunter wanting a deer or turkey license unrestricted by quotas could walk into a license retailer and walk out with a license. No more applications. No more missed deadlines. No more waiting for a tag.

Migratory game bird hunters, required by federal law to register with the U.S. Fish and Wildlife Service's Harvest Information Program (HIP), will be able to do so at the time of purchase. Forgetting to register with HIP, which could result in a citation and fine, will no longer be an issue. Registration will be automatic.

Ken Formanek

Smith believes since more privileges will be sold over the counter, vendors could see an increase in license sales, meaning more customer traffic, and potentially, more overall sales.

"There are more than 200,000 deer hunters and approximately 50,000 turkey hunters who in the past have bought their licenses directly from us year after year. License retailers will have to absorb the workload," Smith said. "That means more than 250,000 hunters will be walking into their local vendor to buy a license. That's a big potential for the retailer selling other

Clay Smith

■ (above) A driver's license can be used to record personal information such as name and address, reducing the time it takes to issue a license.

■ (left) Components of the electronic licensing system, clockwise from upper left: a terminal provided by the DNR, the actual license form and a phone line for the terminal.

products as well as the non-retail vendors who rely on direct contact with the public."

Even the advantages the DNR expects to see will ultimately benefit the citizens of Iowa. One of the greater benefits will be more accurate and timely license and harvest data, information which helps the department set seasons and quotas. Accurate, timely information will also aid conservation officers in their protection of Iowa's natural resources. ELSI will also give the department timely access to license revenues, money which could be put to use almost immediately to fund DNR recreational programs.

"The ELSI system will provide more accurate and accessible information to aid in conservation law," Smith said. "In addition, your license dollars will be promptly deposited into DNR accounts to fund fish and wildlife management and outdoor recreation programs."

As with all new systems, especially one of this magnitude, there will be periods of adjustment and change — some popular, some not so popular. Those changes, some already mandated by law, will be essential to making the system work as intended.

For example, the new system is being designed to use a driver's license as a means of identifying customers. A simple swipe of a magnetic strip license will automatically display the customer's data, thereby making it unnecessary to enter the initial information and hastening the time it takes to issue a license.

However, to access a driver's license data base requires a social security number. Therefore, a social security number will be required when the customer buys a license for the first time. The number will *not* be printed on any license and will be used only as a permanent identification number in the system. Provisions will be made for those exempted by law from having a social security number.

Hunters born after Jan. 1, 1967, will now be required to show proof of having successfully completed a hunters safety and ethics course upon purchase of their first hunting license. The information will be permanently recorded in the computer, and the hunter will not be required to carry the proof in the field.

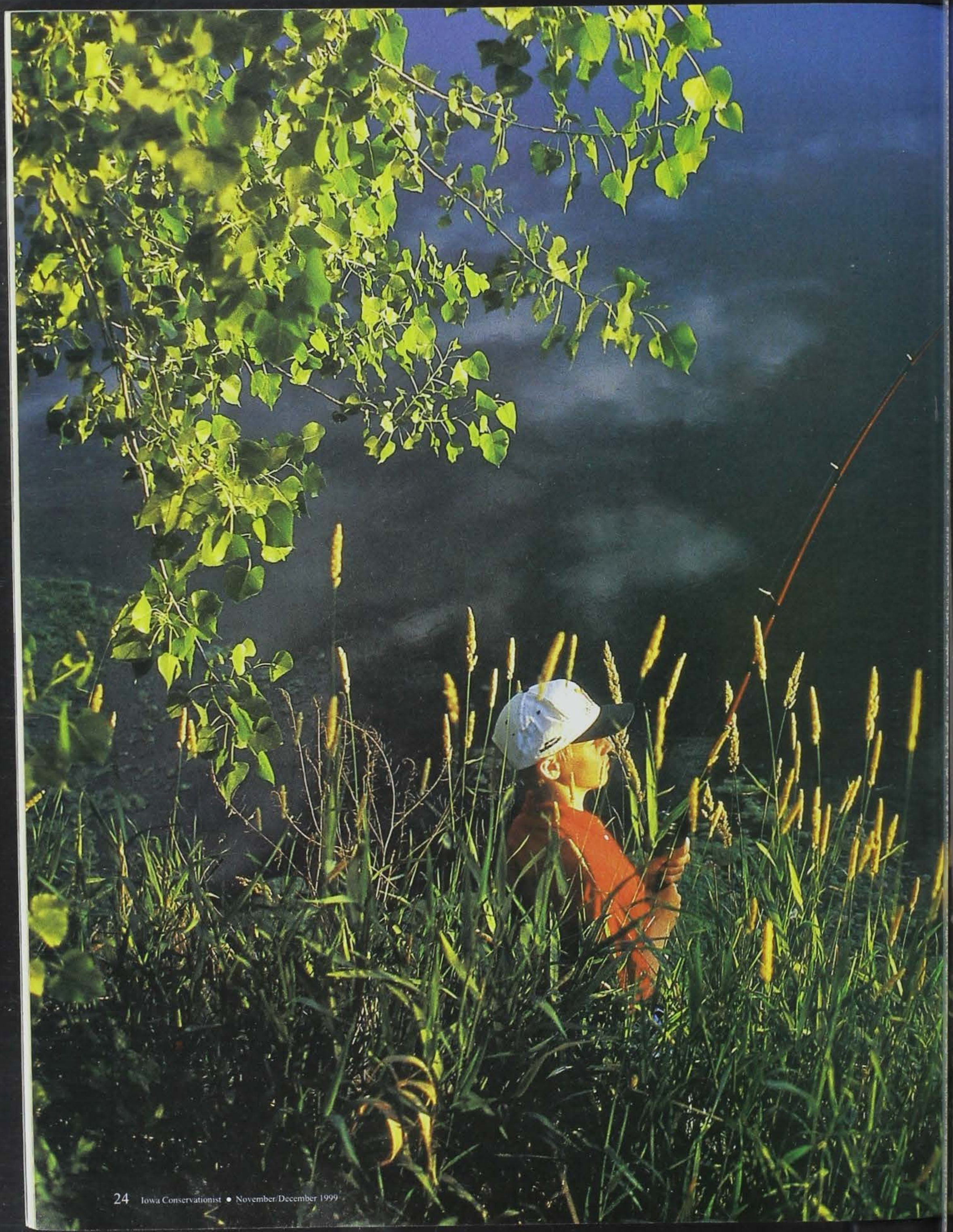
Possibly the greatest benefit to the DNR, and ultimately the public, will be ELSI's ability to record accurate, timely harvest information.

"All deer and turkey hunters will be required to return to a license agent after they have shot a deer or turkey and report what was harvested and where. The hunter will simply need to report the harvest data to a license agent and will not be required to return with the actual animal, as is required in some states," said Terry Little, wildlife supervisor for the DNR. "Nor will the hunter be required to return to the agent who sold the license. Any license agent will be able to record the harvest data."

"ELSI has a lot of benefits, benefits that will be realized if the system is given a chance," Smith said. "We expect there will be a few bugs to work out once the system is installed, but we are making every effort to make sure those bugs don't seriously disrupt the flow of business. It's going to be up to the citizens of Iowa — the license retailers and the customers — to decide whether this system is as successful as we think it can be."

Ken Formanek

ELSI will give conservation officers more accurate and current licensing information.



There's Always Tomorrow

by Lewis Major

Growing up as a young boy, I was often punished for a variety of crimes. Falling in the creek, coming home late for dinner or getting covered in mud were some of my more common offenses. My best friend was usually an accomplice, and our mothers always knew that we were in cahoots with each other.

The stiffest penalty following these lesser crimes was usually confinement to my bedroom. A seemingly lenient punishment, confinement to the bedroom was actually one of the most feared sentences a parent could give an eight-year-old.

How humiliating, how degrading, how disheartening, to be stuck in your room like a rat in a cage while the other kids joyfully played outside. They were free to roam wherever they pleased. All I could do was watch helplessly from my bedroom window, hoping for a full pardon from my parents before sundown.

As I tried to pass the time playing with my Legos, my mind raced over all the things that might happen while I was on the inside. What if my friends go to the creek and catch a huge bullfrog or find a snake? Even worse, what if they go to the field and play baseball or go fishing at the pond. These thoughts were almost unbearable.

The creek, the field and the pond were all places I could go to escape the hard knocks of being an eight-year-old. Although they were all within eyesight of a watchful mother, we still felt like we were far away from any supervision or authority. Mom would try and comfort me by saying, "Just take it easy, all those places will be there tomorrow," and in the short term I guess she was right.

As the years passed, we grew up, and our interests changed from catching frogs and chasing pop flies to catching movies and chasing girls. The creek, the field and the pond that once echoed with the sounds of happy, carefree children were now quiet.

As time passed, we left our homes to go to college and to pursue careers. Each one of us left with childhood memories of playing in the neighborhood and hopes of finding the time to play together just one more time.

As we returned home for the holidays, we found the creek we held so dear had been filled in to provide space for a housing development. A few years later, we saw cars and trucks driving through the field where some of the greatest World Series games had been reenacted. The pond by the field was filled in to make room for a new gas station, providing comfort and convenience to the motorist on the new road in the old field.

As an eight-year-old, I thought the world would never change. I believed my mom's words and thought the creek, the field and the pond would always be there tomorrow. However, even my mother, with all her divine wisdom, could not foretell the future of our childhood playgrounds.

How do we ensure that wild places like the ones I held so dear will be here for the next generation? By casting our bodies in front of bulldozers or chaining ourselves to a tree? Probably not, but we can ensure the survival of these wild places by teaching our children how special, beautiful and delicate our environment is. As a result, they will strive to protect it, ensuring its survival for future generations.

Some times we take things for granted, believing the things we love and think are special will always be around. However, if we don't take the time to protect them, they can vanish right before our eyes. Unfortunately, some feel we don't need to take the time to protect these places, because to them, "there's always tomorrow."

Lewis Major is a naturalist with the Polk County Conservation Board.

Roger A. Hill

Iowa's Stars of Excellence

1999 Iowa Energy Leadership Award Winners

Article by Jessica Free
Photos by Clay Smith

The Department of Natural Resources proudly presents the 1999 Iowa Energy Leadership Awards, recognizing outstanding innovations in energy efficiency and renewable energy in the state.

This year's winners share a strong commitment to teaching and demonstrating energy efficiency and renewable energy through hands-on applications. In other words, these organizations practice what they preach.

These three organizations believe not only in the economic and environmental benefits of their programs, but also in making them easy for the general public to adopt. Their dedication and hard work are helping Iowans move toward a more sustainable future, proving them to be stars of excellence in the energy industry.

To each of the 1999 Iowa Energy Leadership Award winners, congratulations and thank you.

Iowa Energy Leadership Awards

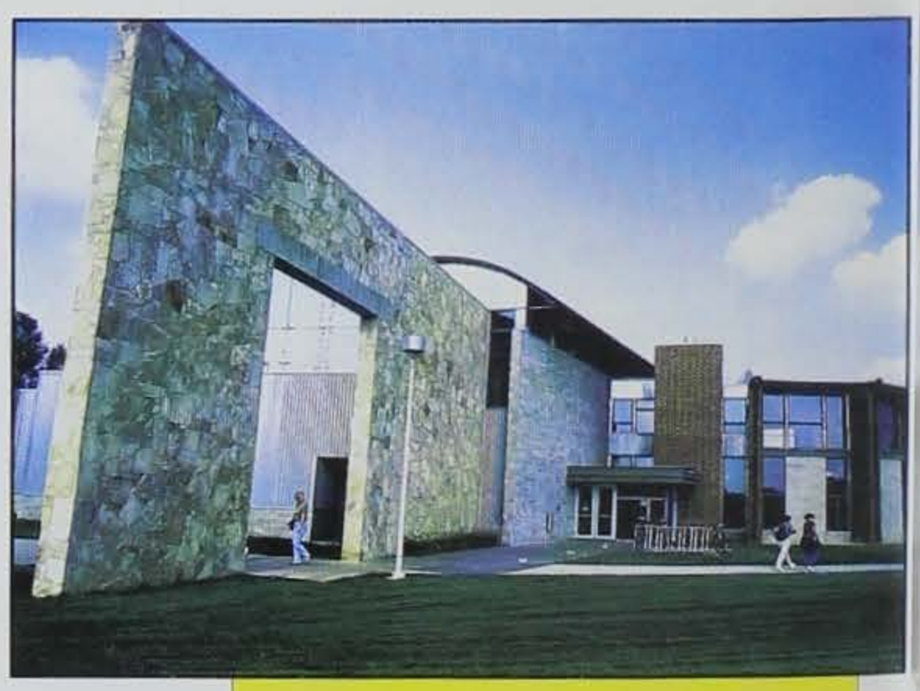
Leading By Example

The Center for Energy and Environmental Education

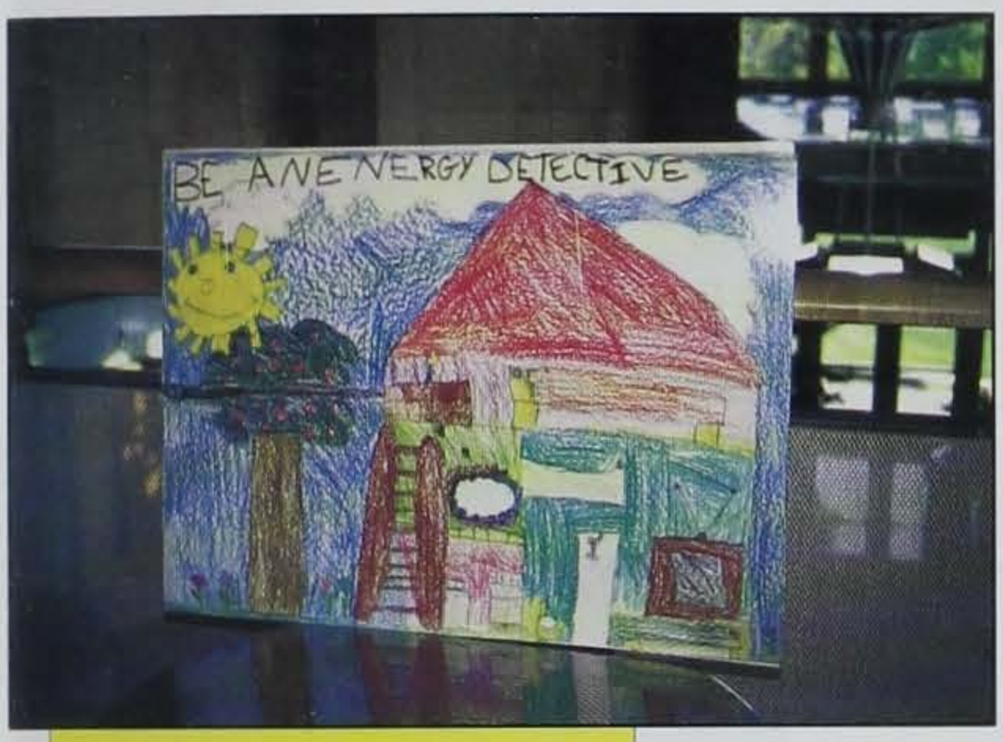
Think globally and act locally. At the Center for Energy and Environmental Education (CEEE), that is not only what they teach, but also what they do.

"Good environmental stewardship locally makes us good stewards of the world environment as well," said Professor Bill Stigliani, director of CEEE. "There are so many possibilities through energy and the environment. We should embrace these new technologies."

CEEE was established to promote greater understanding and awareness about issues related to energy and the environment. The center's various



Built in 1994, the building housing CEEE is 40 percent more energy efficient than comparable facilities.



The Iowa Energy Poster Contest attracts about 1,000 first- through sixth-graders every year.

programs work together to solve global problems on a local level. According to Stigliani, CEEE's strategy is to focus on: 1) energy use, 2) land use, and 3) consumption of materials. All CEEE projects focus on a combination of these concepts and their relationships to one another.

Located at the University of Northern Iowa (UNI) in Cedar Falls, CEEE is leading by example. The center opened its doors in 1994, housed in a uniquely designed passive solar building that uses about 40 percent less energy than a modern building of comparable size. Stigliani said the facility inspires students to learn more about renewable energy and energy efficiency. "The building itself is a teaching tool," he said. And that's just the beginning.

Active Education

As a service and outreach center, CEEE has developed educational tools and events that incorporate renewable energy in student learning. Among these activities are environmental curricula for K-12 teachers; the Iowa Energy Poster Contest for elementary students; the Iowa Electrathon; and the Iowa Energy Summit. CEEE has also developed coursework on energy and environmental studies at UNI.

The Electrathon, started with the Iowa Renewable Energy Association in 1997, is one of CEEE's most fun and effective education initiatives. Over the course of an academic year, students design, build and race electric vehicles with guidance and information from CEEE. The cars then publicly demonstrate the potential that exists for zero-emissions vehicles. "The Electrathon has played a large role in Iowa's transportation education," Stigliani said.

Another major CEEE educational effort is the Iowa Energy Summit. Co-sponsored by the Iowa DNR, with funding from MidAmerican Energy and Pella Corporation, the Summit brings together teams from Iowa high schools annually to discuss the future of energy in the state. The teams research specific energy issues in the months prior to the Summit, then present resolutions in a United Nations format at the event.

CEEE also has a full-time energy educator whose pay is in part provided by Cedar Falls Utilities. The energy educator travels to schools across the state to teach students about renewable energy and energy efficiency. Excited students then share what they have learned with their parents, passing on CEEE's message.

Reaching Further

CEEE has been instrumental in many local and statewide energy initiatives, including the greening of the UNI campus, promoting efficiency to Iowa's churches, and teaching student interns to conduct energy audits in Cedar Falls through a program called Conservation City.

Energy Star Congregations has been one of CEEE's most successful outreach programs. Since 1996, CEEE has encouraged faith communities of all religious denominations to improve the energy efficiency of their facilities. "If a pastor is excited about energy efficiency, there is a ripple effect throughout the congregation," Stigliani said. It is CEEE's hope that parishioners will be inspired to adopt energy-efficiency measures in their homes.

CEEE is a co-sponsor of the Iowa Electrathon, an annual event teaching kids across the state how to build and race electric cars.

The Conservation City program is

CEEE cont'd on page 29

Building A New Future

Habitat for Humanity of North Central Iowa

Hammers, nails, hard work and ingenuity build more than a house – they can build a home so efficient it saves money.

Habitat for Humanity International has built and rehabilitated more than 80,000 houses for families in need since its inception in 1976. Habitat for Humanity of North Central Iowa (Habitat) is going one step further in its effort to create affordable housing for low-income families.

The organization has built the first Habitat house in Iowa to meet Energy Star standards, demonstrating the benefits of energy efficiency. A family of four is now living comfortably and saving money in the newly constructed home in Mason City, Iowa. It is expected to save 50 percent of typical energy expenses.

"We're just putting some common sense to the way we build things," said Earl Mason, Habitat board member and volunteer.

Nuts and Bolts

When Habitat began planning for its newest project last year, Mason discovered energy-efficient house plans on a website for the National Affordable Housing Network. The plans called for simple energy-saving measures that didn't greatly affect the building cost.

The house was built with a crawl space to avoid basement heating and subsequent heat losses through foundation walls. Two exterior walls were filled with insulation, eliminating conductivity between the interior and exterior walls. The house also has a 100-percent vapor barrier.

Interior construction varied greatly from normal methods. Drywall was applied to the entire ceiling and inside perimeter walls before any interior walls were erected, preventing air leaks. Special roof trusses provide insulation over the entire ceiling.

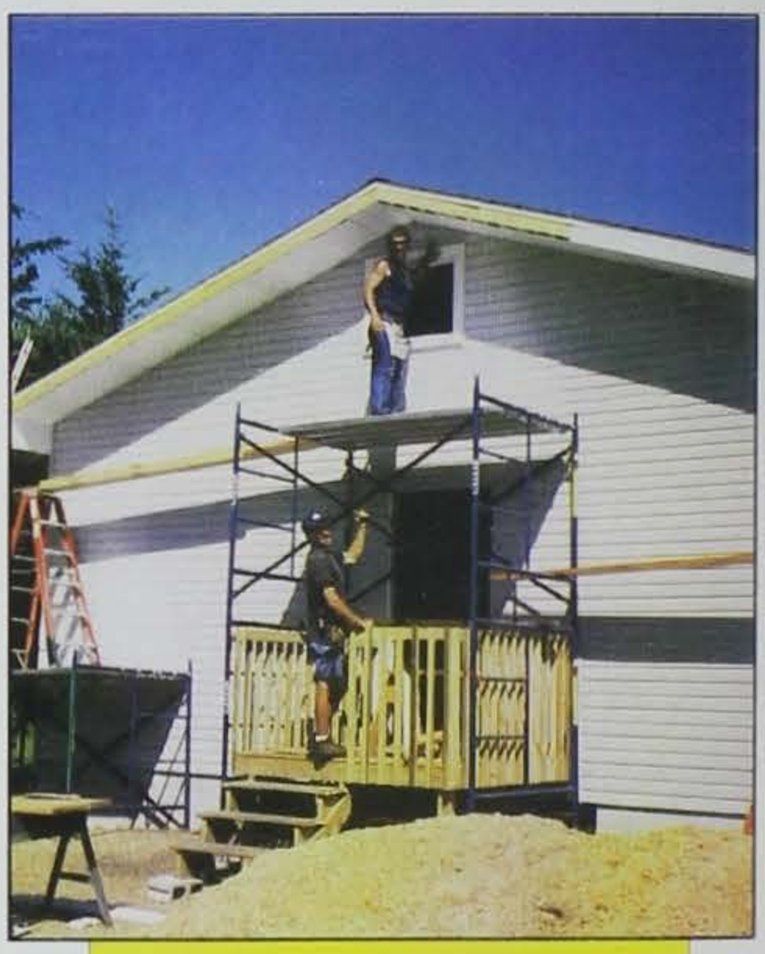
Additional energy-efficiency features include the use of a 25,000 BTU closed-combustion space heater instead of a furnace, and whole-house ventilation to bring in fresh air continually.

Family Matters

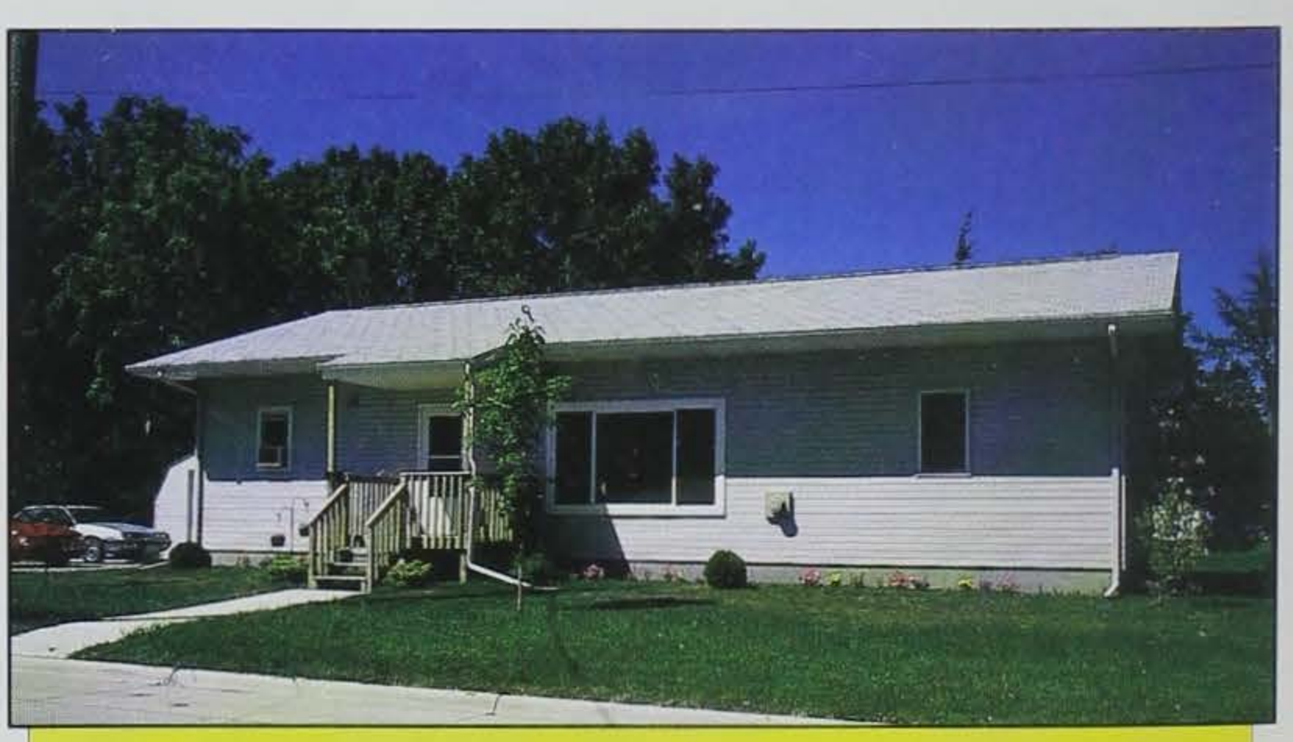
Since moving into the house in November 1998, Kai and Sue Kral, along with their sons, Jake and Nathan, have reaped the benefits of Habitat's energy-efficiency efforts.

"Our utility bills have been running between $70 and $90," said Sue Kral. "They used to be $120 in a house the same size as this one."

Mason said, "Habitat works with people whose incomes are not high. We pay close attention to keeping the



Construction included high-performance windows and doors, which minimize air leaks.



Habitat for Humanity constructed this three-bedroom home for the Sue and Kai Kral family in Mason City. The house was built to Energy Star standards.

Energy-efficient equipment such as this sealed-combustion water heater help cut the home's energy use by 50 percent.

utilities low." He said energy costs will continue to decrease as the Krals learn how to properly adjust the ventilator.

"The house is also very quiet because of the extra insulation," Kral said. That insulation and carefully sealed seams make temperature regulation easier as well.

Follow the Leader

At a recent regional Habitat for Humanity meeting, the Krals' home was presented as an example of innovation and leadership. Millard Fuller, founder and president of Habitat for Humanity International, said the energy-efficient design information will be made available to all 1,800 active Habitat affiliates.

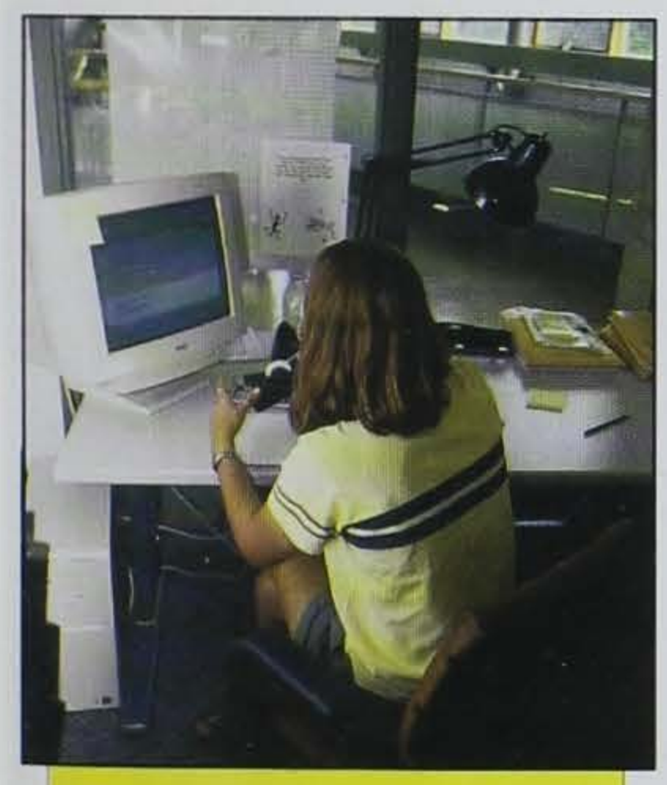
"This is turning out to be a great success. We intend to build all our homes to Energy Star standards from here on out," Mason said.

In fact, the organization is forging ahead in its energy efforts. It is now working with the Iowa Renewable Energy Association to build a photovoltaic solar home in 2000. The home is hoped to be completely unconnected to the electricity grid.

"Saving energy is simple to do," said Mason. "You just need to learn how and make a commitment to it."

The Kral family, Jake, Nathan, Sue and Kai, is pleased with the home built by Habitat for Humanity.

CEEE Leading by Example *cont'd from page 27*



Students learn about energy and environmental studies through coursework at CEEE.

dedicated to increasing energy efficiency and demonstrating its benefits in Cedar Falls. Among these benefits are increased disposable income, new jobs, improved air quality, and reduced carbon dioxide emissions. Participants include schools, businesses, churches and local residents.

"We're the only ones that go house to house, church to church, school to school with energy audits in our hands," Stigliani said. "We're not just disseminating information - we're trying to get people involved!"

Sources of Inspiration

The inception of CEEE began in the mind of former UNI president Constantine Curris who worked to strengthen the university's environmental programs. With a grant of nearly $4 million from the U.S. Department of Energy, that vision became the Center for Energy and Environmental Education. CEEE now operates on funding from sources such as the Iowa Energy Center, the Environmental Protection Agency, Cedar Falls Utilities, the Resource Enhancement and Protection Program, UNI, and several foundations.

Looking Ahead

"I want people to think about living sustainably, and I want people to think of future generations," Stigliani said. With increasingly successful programs, a global vision, and a dedication to leading by example, CEEE is on its way to attaining that goal.

Will Power to Renewable Power

The Iowa Renewable Energy Association

Solar panels powered a stage at the 1999 Iowa State Fair.

It has no building of its own, no town to call home. It moves from place to place – at the Iowa State Fair one week and putting on a workshop in eastern Iowa the next – promoting and educating Iowans on renewable energy and energy conservation. Its tremendous impact is felt across the state; its influence is widespread. It's the Iowa Renewable Energy Association (I-RENEW), and it aims to achieve long-term social, environmental, and economic sustainability.

The small grassroots organization burst into Iowa's energy community in 1992. Tom Snyder, a school teacher, and Tom Deves, an engineer with John Deere Works, were pushed ahead in their effort to form I-RENEW when the Iowa Sustainable Energy for Economic Development Coalition and the Iowa DNR funded the first Annual Energy Expo.

Since then, I-RENEW has grown rapidly and is now a leading educator in renewable energy. The non-profit organization has more than 400 members from across the country who take pride in working together to implement alternate energy ideas into mainstream public thinking.

"Total volunteer dedication is what makes this organization work," said Tom Snyder, co-founder and past president. "Every member has a commitment to the cause, a commitment to renewable energy."

Expo Exposé

I-RENEW presently sponsors about six major programs, the largest of which is the Annual Energy Expo. The original event (1992) was a one-day informational gathering with a few hundred attendees. Over the years, the Expo expanded to a two-day event with workshops, displays and working demonstrations on various renewable energy technologies, energy-efficient building

10th Anniversary of Energy Innovation

Iowa Energy Leadership Awards: 1989-1999

1999 marks the 10th anniversary of the Department of Natural Resources' Iowa Energy Leadership Awards. In the past decade, more than 50 organizations have been honored for their outstanding contributions in the fields of energy efficiency and renewable energy development.

Past award winners include schools, utilities, businesses, hospitals, nonprofit organizations and many others. All have taken Iowa to the forefront of technology and innovation, proving that smart energy use is important for the state's economy and environment. The DNR looks forward to continued leadership from Iowa's energy innovators.

If the the new century follows the same path as the past 10 years, Iowa has a very exciting and energy-wise future ahead.

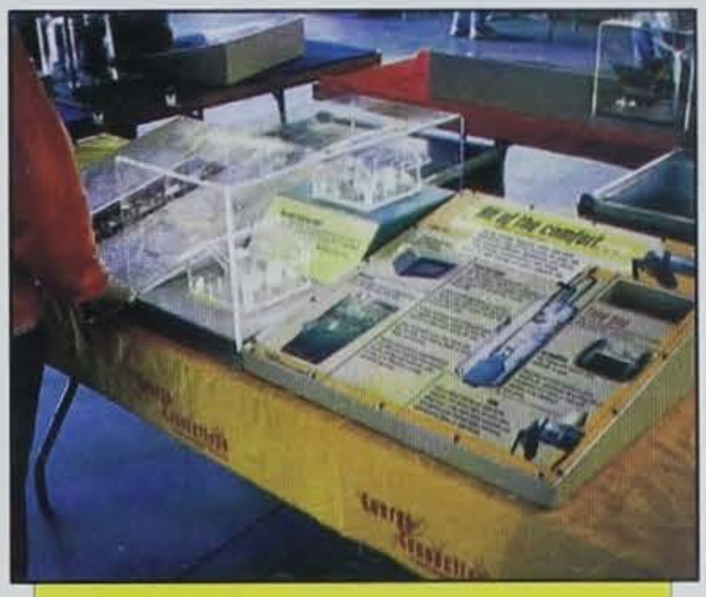
techniques, alternative fuel vehicles, and legislative policy about energy issues.

More than 1,500 people attended the Energy Expo in 1998, and higher numbers are expected for the 1999 Iowa All-Energy Expo. Despite the increasing number of attendees, I-RENEW continues to strive for a "laid-back" atmosphere that is attractive to the general public.

"It's a place for people to come and exchange ideas," Snyder said. "We want to inform people about what we know about alternate energy, but we also want to hear what they know."

watts of the donated PV panels were installed at the Indian Creek Nature Center in Cedar Rapids. I-RENEW also built a PV trailer with some of the panels in 1998. The trailer has appeared at events across Iowa and the nation, including the Energy Expos, RAGBRAI, the Iowa State Fair, and the National Solar Music Fest in Taos, New Mexico.

I-RENEW also offered a workshop on PV electrical power systems during spring 1999. Workshop attendees learned about the theory and construction of solar-powered electrical systems.



A renewable energy display at one of I-RENEW's many demonstrations.

For the 1999 Iowa All-Energy Expo, I-RENEW has partnered with other energy and environmental organizations in the state to create a four-day event, giving attendees more opportunities to see all that is offered.

Let the Sunshine In

Solar power is involved in several of I-RENEW's major projects. In 1996, the organization received a gift of 116 photovoltaic (PV) solar panels from Brookhaven National Laboratory in Upton, New York. The panels, which were designated for educational projects, are used frequently for demonstrations and workshops.

In the summer of 1997, 1000

Top Priority

I-RENEW strives to reach kids, teachers, and everyday people with its message of sustainability. Besides the Energy Expo and solar workshop, I-RENEW has offered workshops on strawbale building construction. It also teams up with the Center for Energy and Environmental Education to co-sponsor the Iowa Electrathon. The Electrathon gives high school students an opportunity to learn about alternate energy by designing, building, and racing electric vehicles.

Snyder said: "Our primary purpose is education. We are working toward becoming an accredited educational institution." If that happens, people could receive continuing education or college credits for taking classes or attending workshops offered by I-RENEW.

Trusting the Teacher

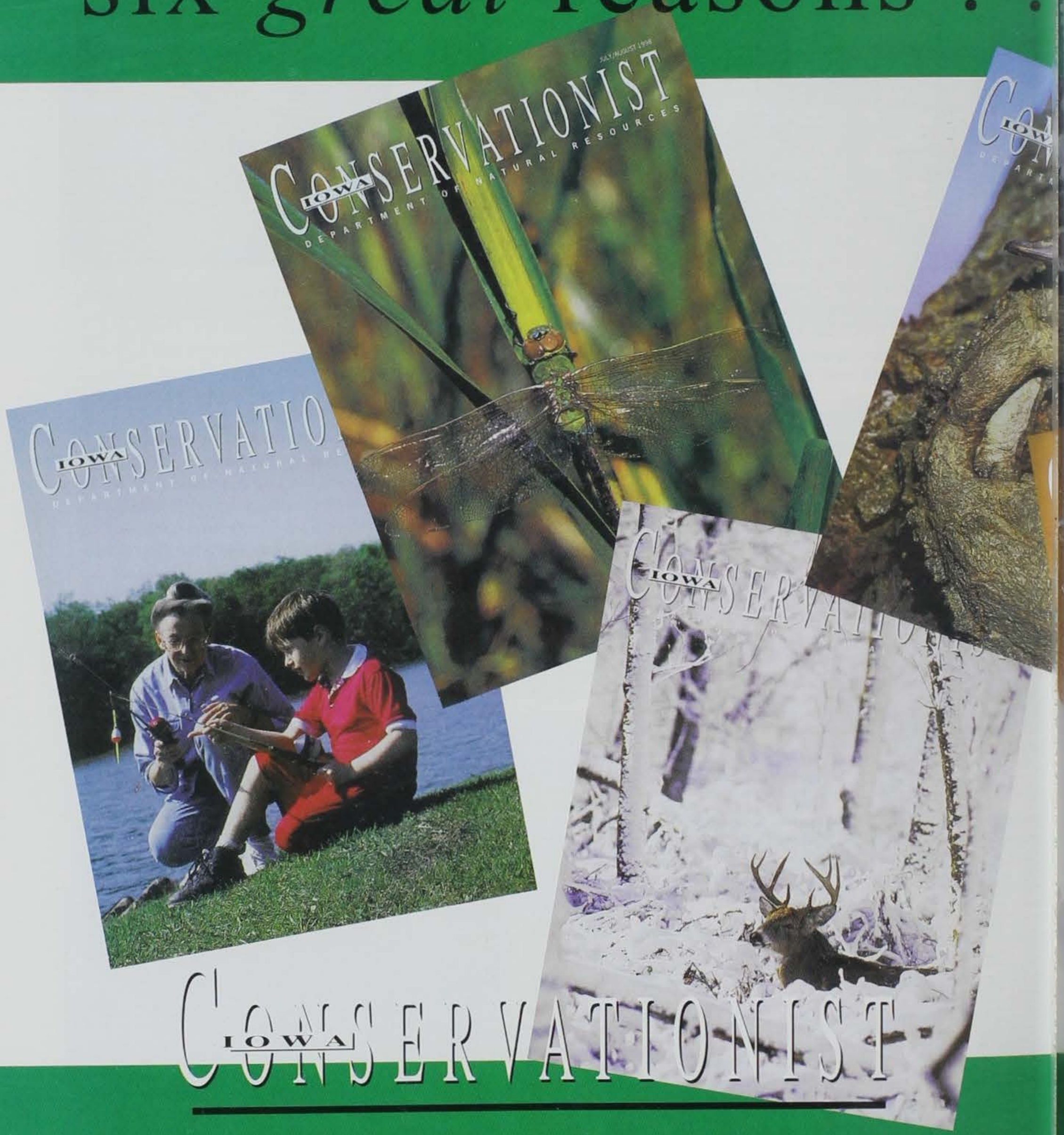
"People trust our opinion," Snyder said. "We're honest about renewables and we're showing Iowans that alternate energy can work. We're *doing* alternate energy. People can come to our classes or to the Expo and learn by doing; it's all hands-on."

Snyder and I-RENEW want to teach Iowans common sense: "People seem to have forgotten that fossil fuels are finite. They're not going to last forever. Alternate energy has to become mainstream."

(Above left): An electric-powered ice cream truck on display at the annual Energy Expo.

(Right): Iowans learn about the Iowa Electrathon, an electric car race co-sponsored by I-RENEW.

six *great* reasons . . .



IOWA CONSERVATIONIST

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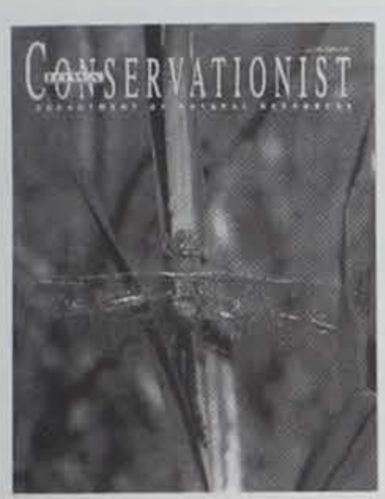

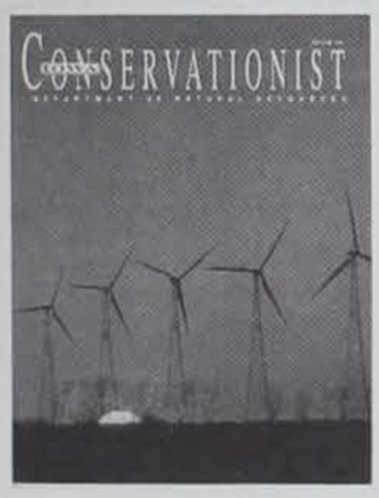

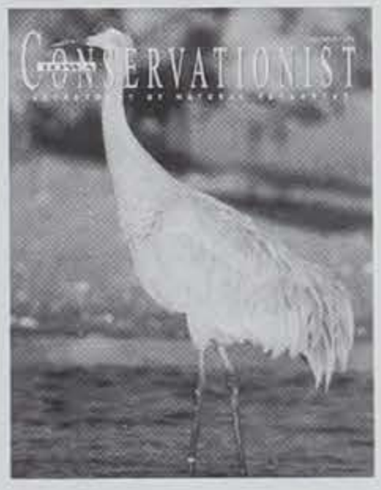

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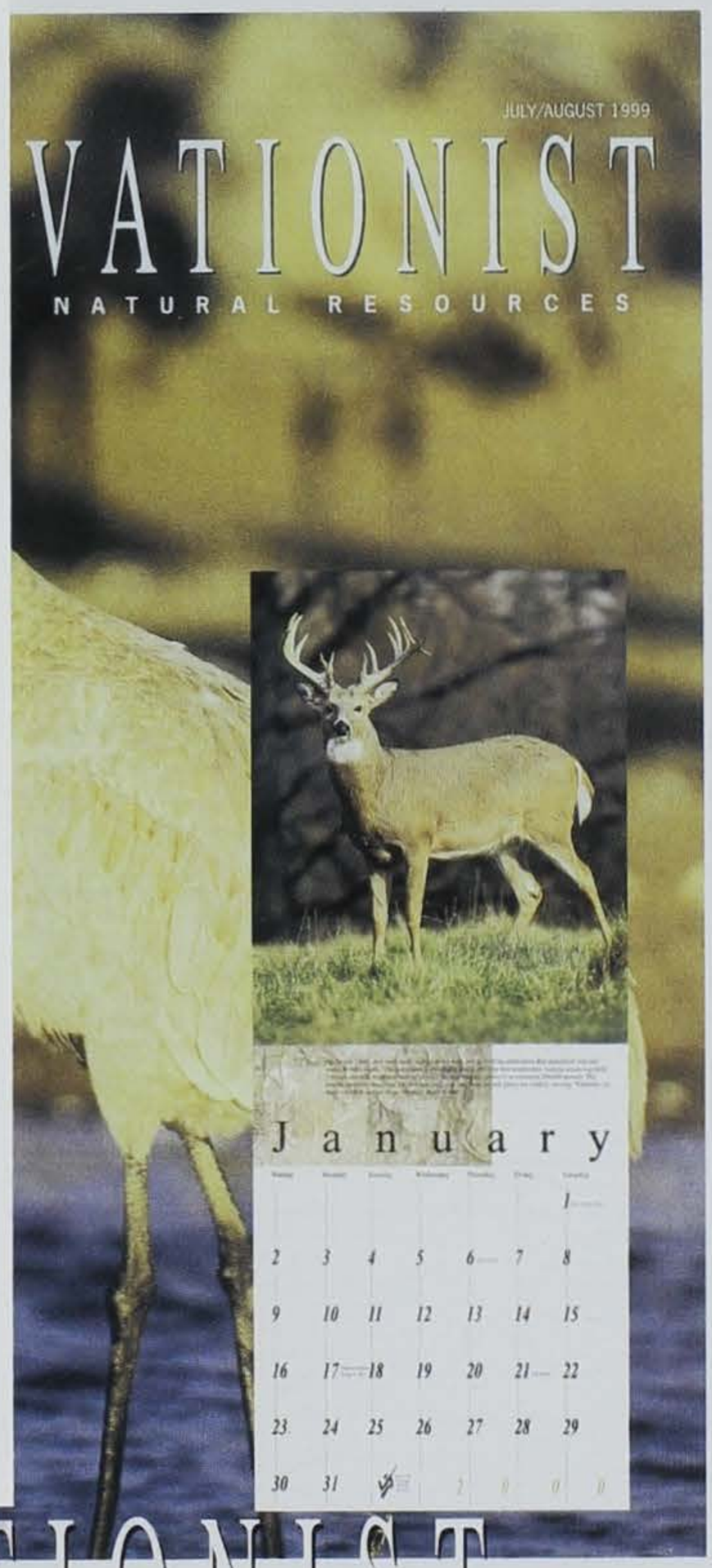

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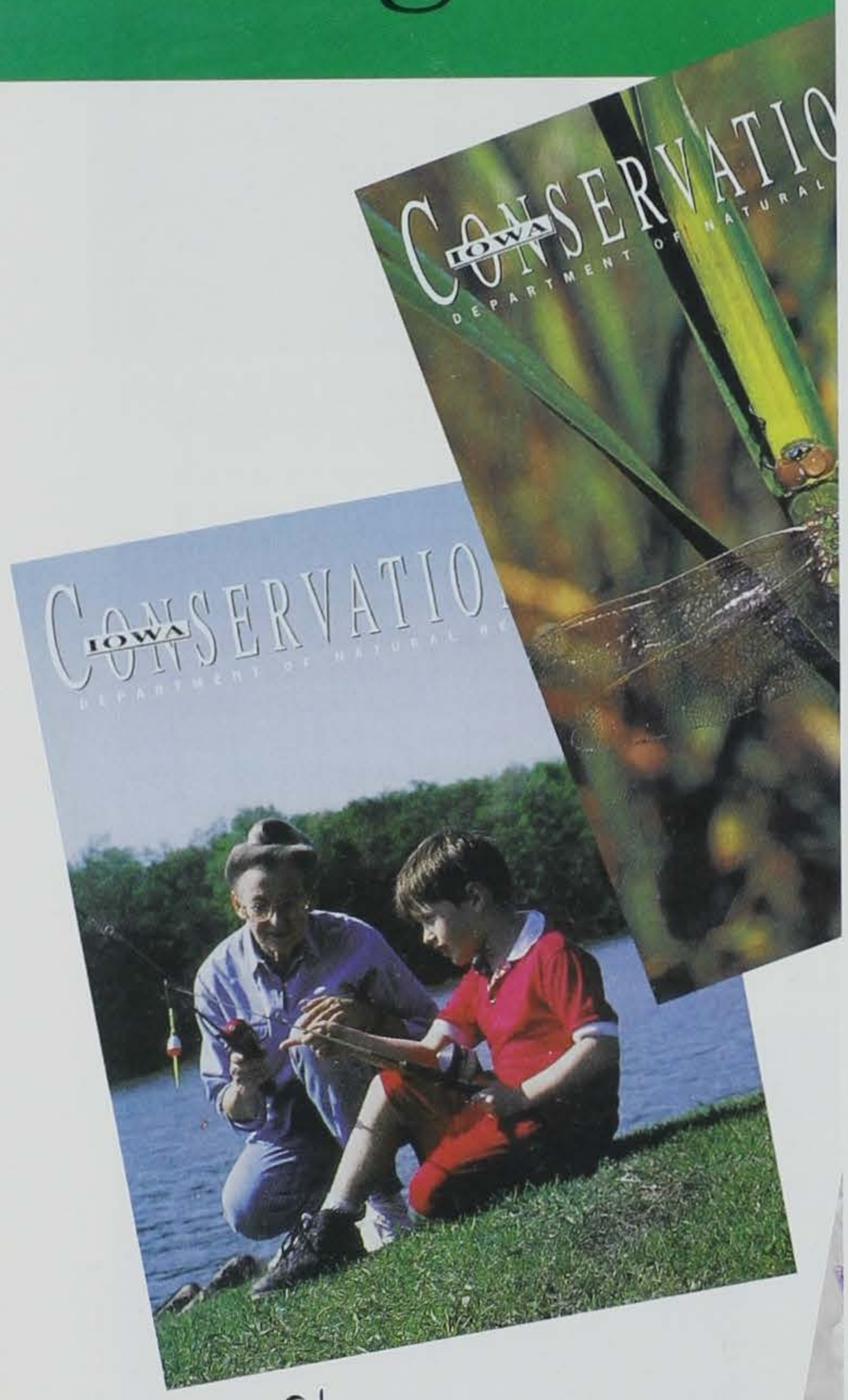

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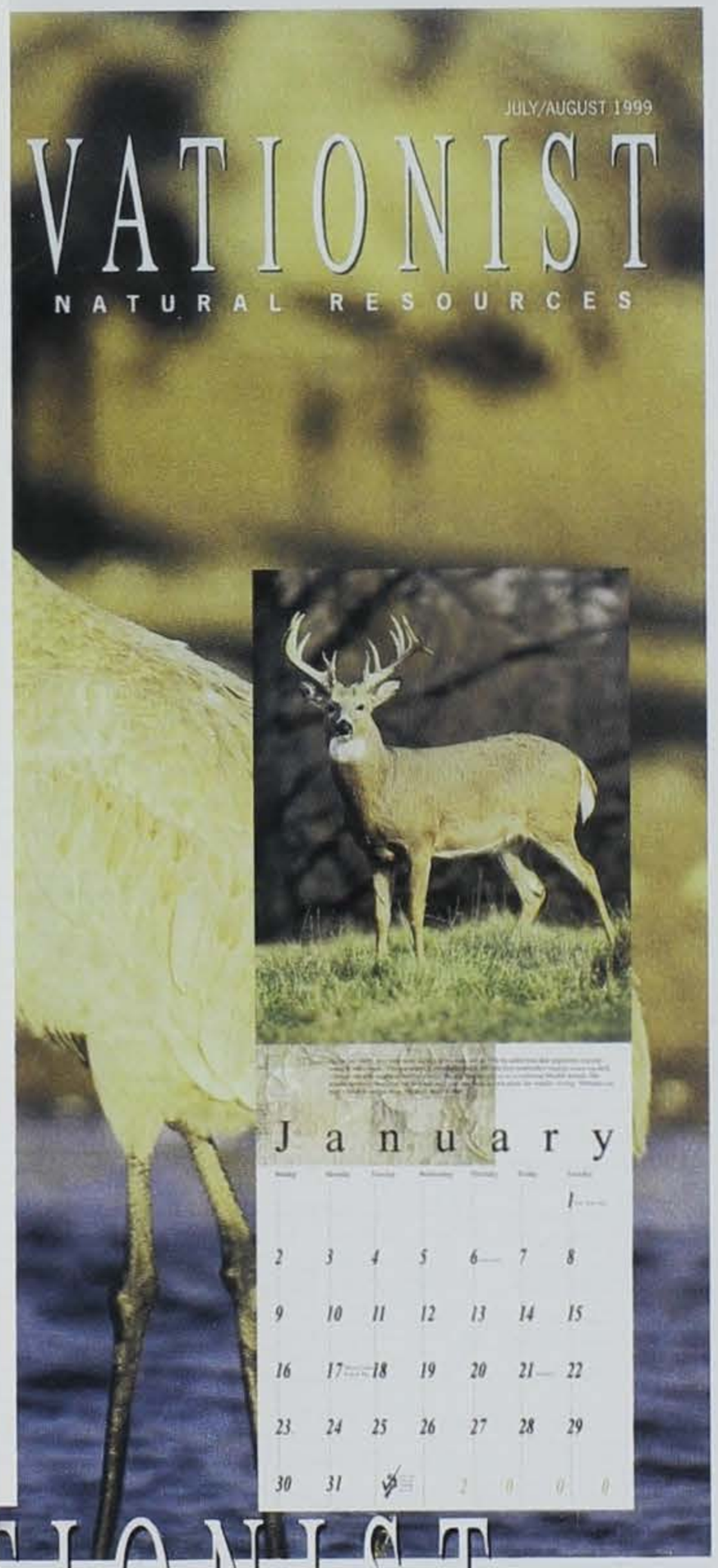

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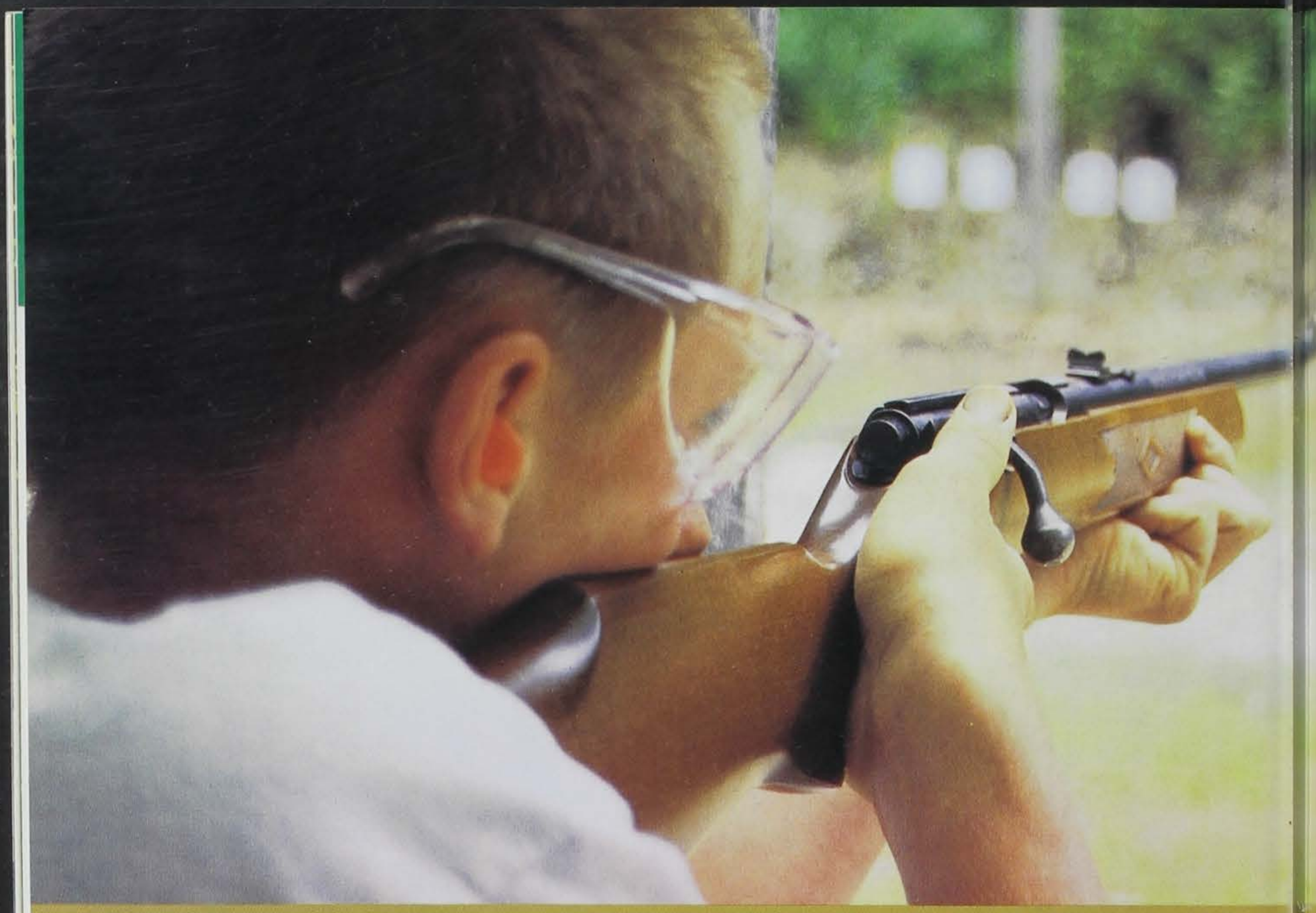


Right On the Mark

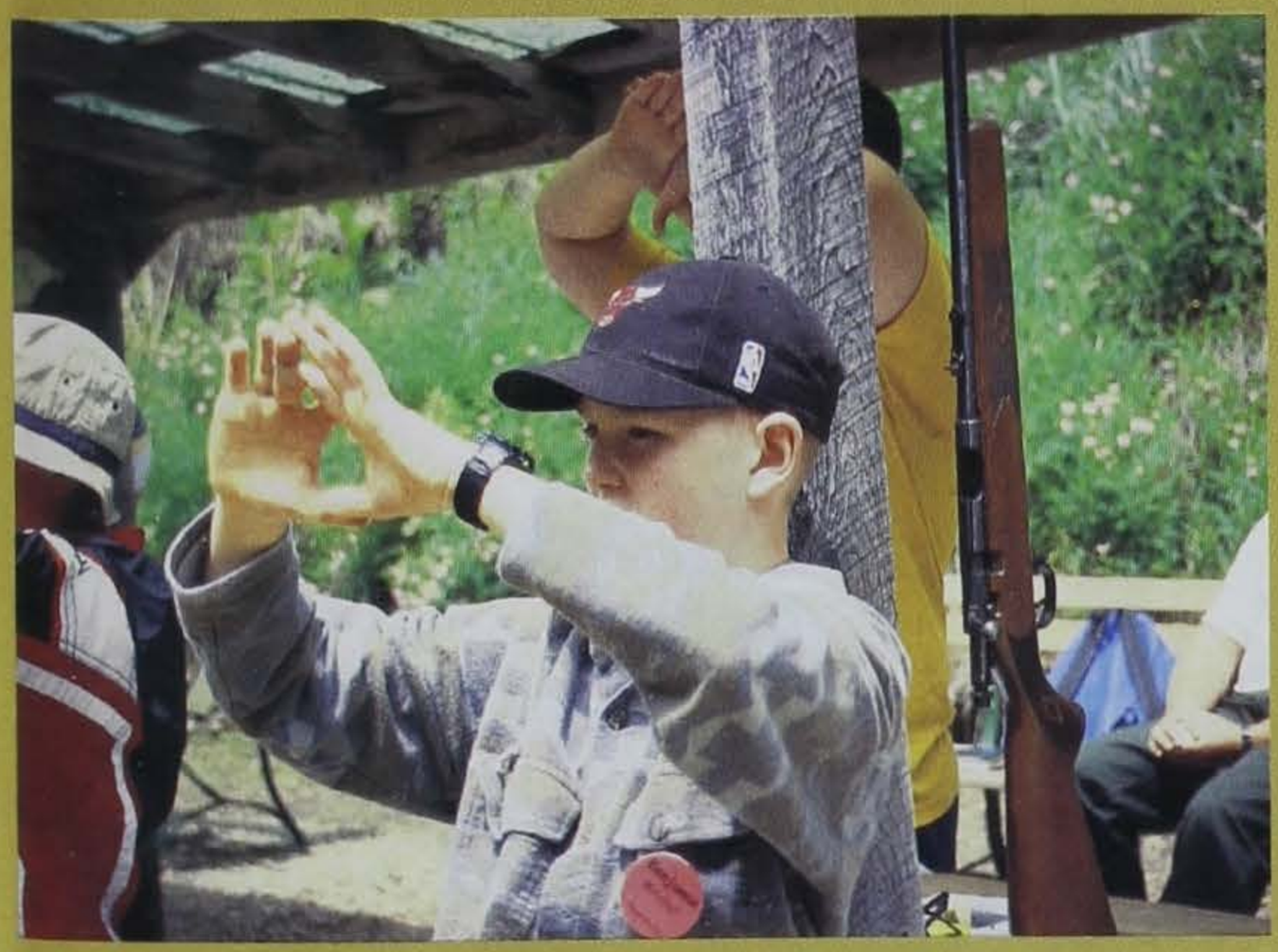
by Alan Foster
Photos by Clay Smith

Young Billy was quiet, almost sullen as he trudged slowly up the long, sidewalk leading to the mess hall. His shoulders and arms were pinched inward, his eyes fixed on the gray concrete path. He looked like he was being led away to some dreadfull place. He muttered a timid "Hi" to the uniformed officers gathered inside the hall. His eyes barely left the floor as he listened to his mother rattle off personal information to the lady seated at the long table in front. Told to find a dorm and set up his bunk, he made his way back down the sidewalk. He picked the first dorm he came to and threw his bag on the mattress, claiming one of the premium upper bunks as his. He made sure to pick one farthest from the dorm leader's, who had strategically set up residence on the lowest bunk closest to the door. He responded stoically to his mother's final list of instructions, shuddered as she said her final goodbyes and hoped no one, especially his bunkmates, saw the motherly kiss on his cheek. Billy's mother had scarcely made it to her car when the mood inside the small yet comfortable dorm room changed like night and day. In seconds, Billy went from a quiet, seemingly withdrawn boy to one full of vim and vigor. And in no uncertain terms, he informed his dorm leader, "I will be your worst nightmare."

A similar story played out in dorm room after dorm room that warm, sunny June day. The Springbrook Conservation Education Center, for the moment tranquil since the end of the Outdoor Journey for Girls Camp four days earlier, was once again alive with the sounds of young boys arriving for the first of two summer Hunting and Conservation Camps for Boys. From across the state came 12- to 15-year-old boys, nearly 100 in all, to learn more about hunting, trapping and conservation.

Some of the boys, having come from the same county, were already friends. Most, however, were meeting for the first time. The comfort of established friendships coupled with apprehension of being among strangers created animated, even braggadocios talk as the hierarchy among peers was formed. A healthy dose of structure, however, put an end to the youthful competition before it could consume the entire group.

Structure, in this case, came in the form of Gloria Baker, who for the past six years has led the DNR's outdoor skills education efforts for both youths and adults at Springbrook . Within an hour after arriving at camp, the boys were introduced to an agenda designed to consume nearly every minute of their time over the next three days. For this assemblage, that wasn't a



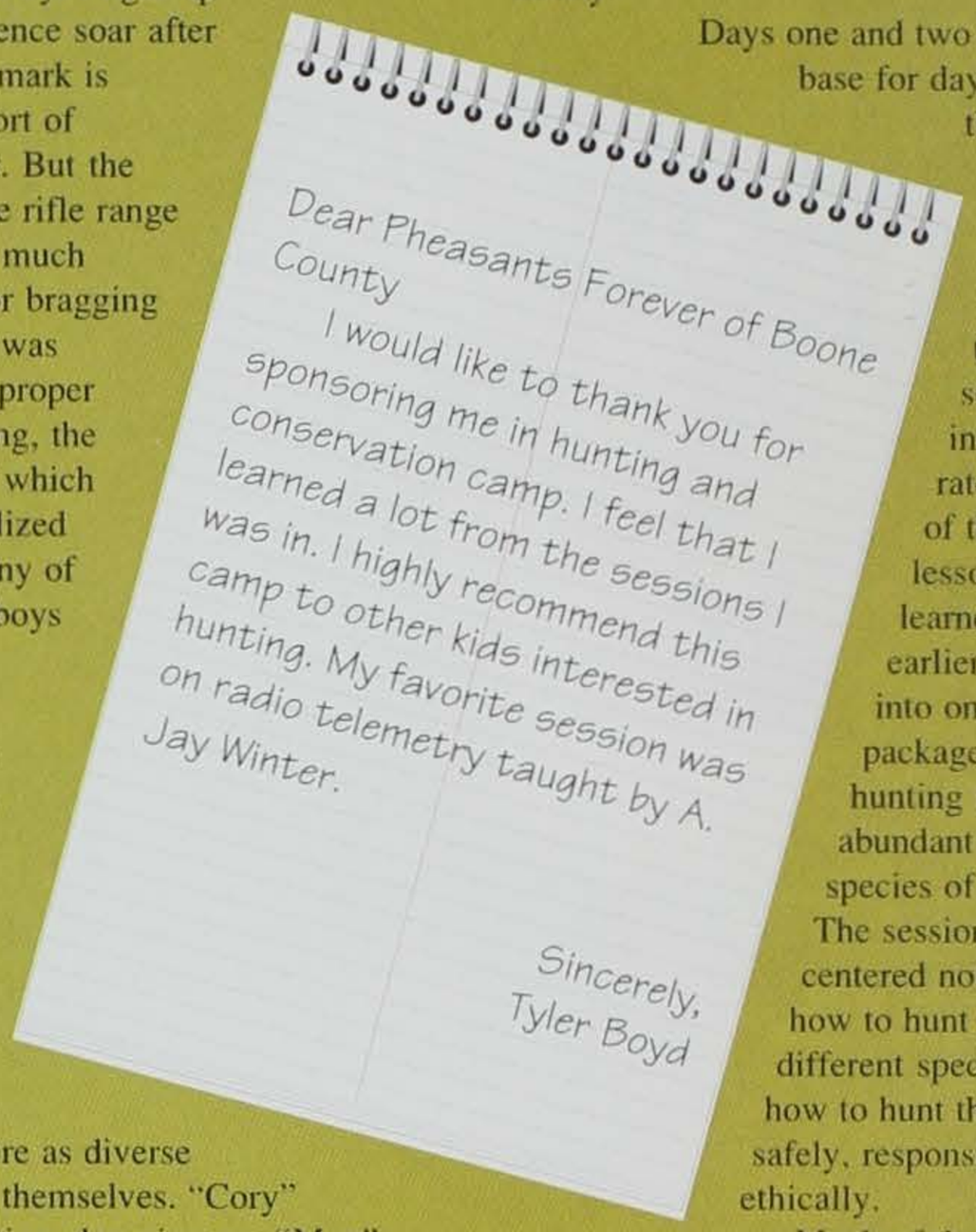
drawback, considering it was the contents of the agenda they came for in the first place.

The camp is designed to provide boys ages 12-15 opportunities to learn more about hunting, and more importantly, how to do it safely, responsibly and ethically. The basics of shooting muzzleloaders, shotguns, rifles and bows; hunting pheasants, ducks, deer and wild turkeys; training hunting dogs; and furharvesting are covered at the camp. Woven into the sessions are lessons on ethics, responsibility, safety and conservation practices, taught by the very people who live it every day — DNR and county conservation officers, biologists, outdoor educators and naturalists.

At June's camp, day one was set aside for furharvesting; dog care, training and selection; small game hunting and .22 caliber rifle shooting; and orienteering. By far, the most popular was rifle shooting, although dog training and furharvesting garnered its fair share of young fans. To see a young kid's eyes light up and confidence soar after hitting his mark is nothing short of spectacular. But the focus of the rifle range was not so much bullseyes or bragging rights as it was safety and proper gun handling, the benefits of which will be realized later as many of the young boys turn into young sportsmen.

Shooting sports again took top bill on day two, only this time the preferred pursuits were as diverse as the kids themselves. "Cory" loved shooting clay pigeons. "Matt" preferred shooting bows. "Kent," introduced to muzzleloading for the first time, excitedly declared it his new hobby.

Days one and two built the base for day three, the final leg of the journey. Day three's sessions incorporated many of the lessons learned from earlier sessions into one big package — hunting the abundant wildlife species of Iowa. The sessions centered not only on how to hunt the different species, but how to hunt them safely, responsibly and ethically.



Much of the credit for the success of the camps, including the Hunting and Conservation Camp for Boys and Outdoor Journey for Girls, can be directly attributed to the volunteers who staff them and the state wildlife organizations that sponsor the campers. Pheasants Forever chapters across the state shoulder the costs of the Hunting and Conservation Camps for Boys and Outdoor Journey for Girls, covering the registration fees for kids from their county. The partnership between the DNR and Pheasants Forever is helping shape the future for many Iowa youngsters.

EVERYONE kept an ear open durining the dog training session.

"The partnership we have with Pheasants Forever chapters throughout the state is one of the main reasons the DNR is able to provide a program of this quality for the youth of Iowa. Not only do they recruit and sponsor the boys by paying the $70 fee, several members from the chapters volunteer to assist as camp leaders," Baker said. "The partnership we have built with Pheasants Forever will help ensure the furture of conservation and our hunting heritage for many years to come."

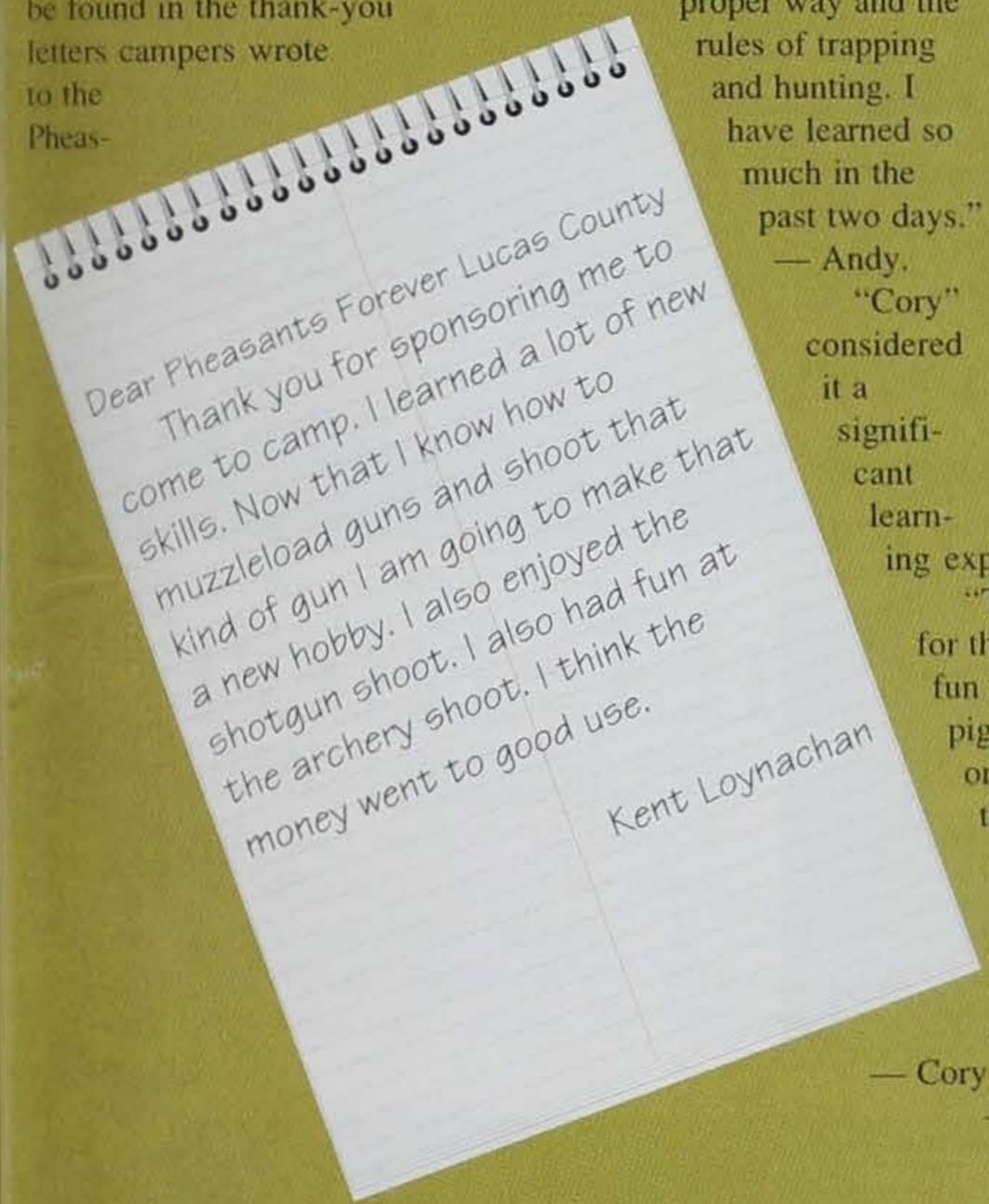
The fruits of that partnership can be found in the thank-you letters campers wrote to the Pheasants Forever chapters that sponsored them.

"Thanks a lot for sponsoring me. I really enjoyed this hunters education center. The centers I liked the most were: muzzleloading, .22 rifle shooting, fur harvesting and shotgun shooting. I learned how to handle a gun the proper way and the rules of trapping and hunting. I have learned so much in the past two days." — Andy.

"Cory" considered it a significant learning experience.

"Thanks for paying for the camp. It was fun around here. Clay pigeon shooting was one of the funnest things that we did I think. But that's my opinion. I learned more here than in school all year." — Cory

Pheasants Forever member Mike Pickering, with a little help from two of his German shorthaired pointers, demonstrate some of the dog commands commonly used in the field.



What ever came of Billy? Billy's bark proved to be much worse than his bite. Billy turned out to be a model camper, ornery yet inquisitive and attentive. He learned there was much more to hunting than shooting his limit or filling a tag. He realized Iowa's natural resources were something to truly appreciate and respect. He discovered the leaders — even those in uniform — were not the insufferable authority figures he thought they were. Rather they were friendly and helpful, and maybe, even good role models, mentors and friends. In fact, after the last session had long been over, Billy refused to leave before saying goodbye and introducing his mother to his dorm leader.

And his new friend.

2000 Stamp Designs

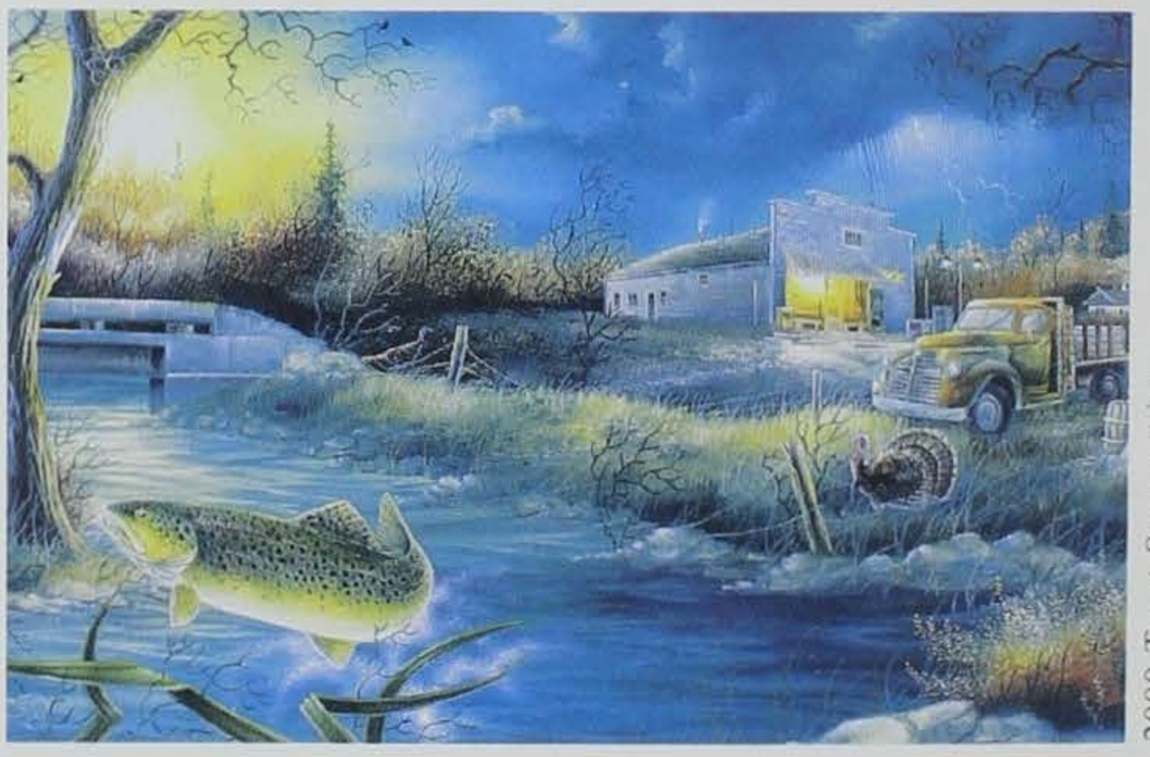
The 2000 Iowa Habitat Stamp print, "Evening Cover," was designed by Greg Bordignon of Robins. The stamp shows wood ducks landing on a wetland. Bordignon's work has twice appeared on the cover of the Iowa Hunting and Trapping Regulations booklet and inside the *Iowa Conservationist* magazine. He was named the Iowa Pheasants Forever Artist of the Year in 1995, 1996 and 1998, and the Iowa Ducks Unlimited Artist of the Year in 1998. A limited number of artist editions is available through Wildlife Creations, 630 Grand Court, Robins, Iowa 52328; (319) 395-9487.

2000 Habitat Stamp print

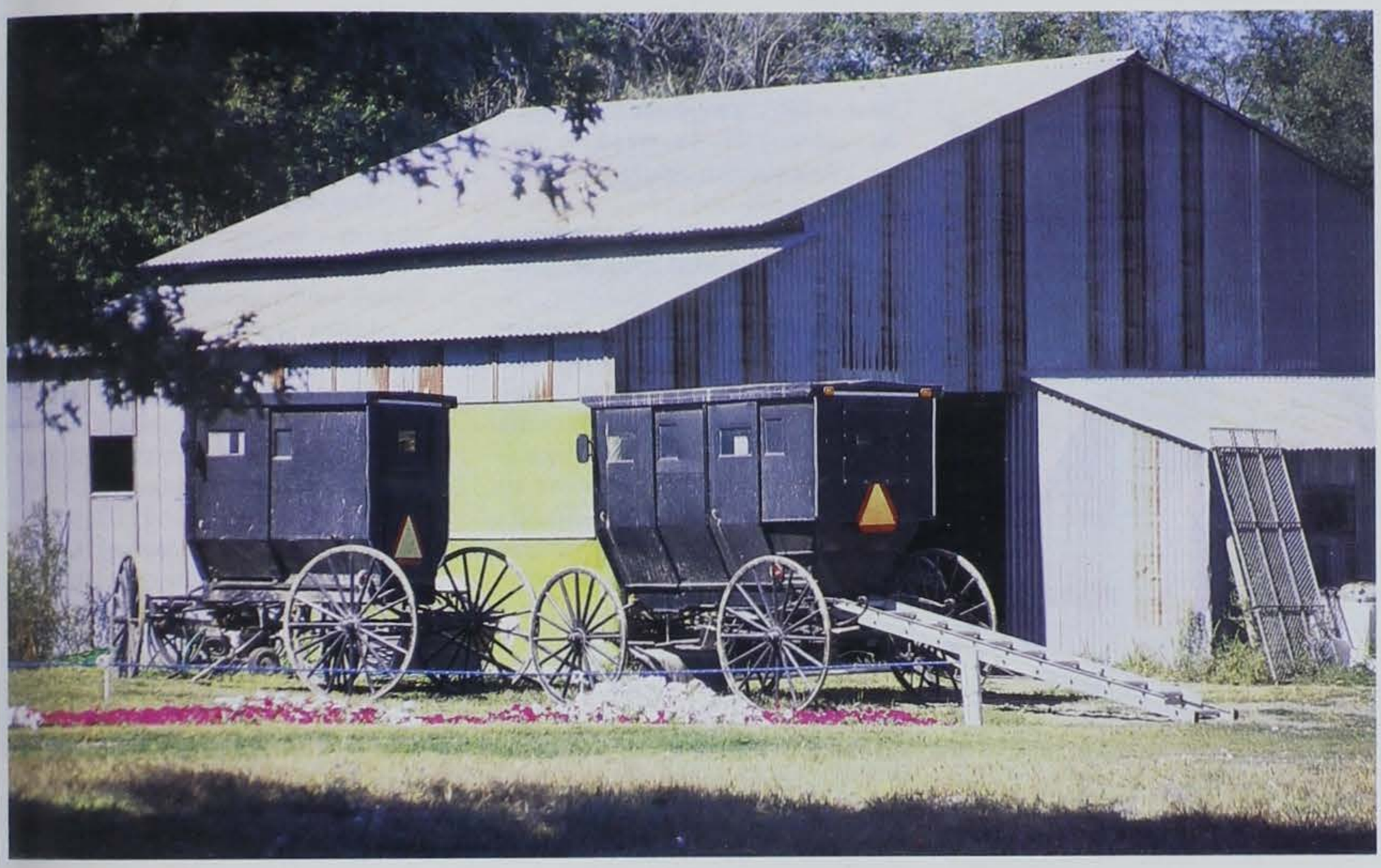
2000 Duck Stamp print

The 2000 Iowa Duck Stamp print, "Hooded Merganser," was designed by Ducks Unlimited Honorary National Trustee Sherrie Russell Meline. Meline has won numerous state duck, wildlife and nongame stamp competitions and has been commissioned for several others. A limited number of artists editions is available through Wingbeat, 2116 Tanager Lane, Mt. Shasta, Calif. 96067; (530) 926-3477. Ducks Unlimited sponsor prints are also available at chapter banquets.

The 2000 Iowa Trout Stamp print was designed by "industrial wildlife" artist J.D. Speltz. This year's design showcases the Highlandville area, and its trout and wild turkey resources, in early spring. The scene depicts a leaping brown trout, with a wild tom turkey in the background. Speltz, winner of eight state stamp and four national print awards, and Speltz Studio has accounted for more than $400,000 in revenue donations. A very limited edition of 250 prints is available at Speltz Studio of Wildlife, (712) 864-3001, Monday through Friday 9 a.m. to 5 p.m., and Saturday 9 a.m. to noon.



2000 Trout Stamp print



From Tires to Toilets:

Iowa experiment explores new use for an old waste product

Article and photos by Kevin Baskins

The family vehicle sits near the barn where Andrew and Menno Miller work on vehicles for other families in their community. There isn't a rubber tire in sight.

But the rubber tires are there. This Amish farm near Bloomfield has become an unlikely site of a cutting-edge experiment using recycled tires in an innovative new fashion. Below the surface, out of sight, tires are being used as aggregate to distribute waste for a new septic system serving the residences of the Andrew and Menno Miller families.

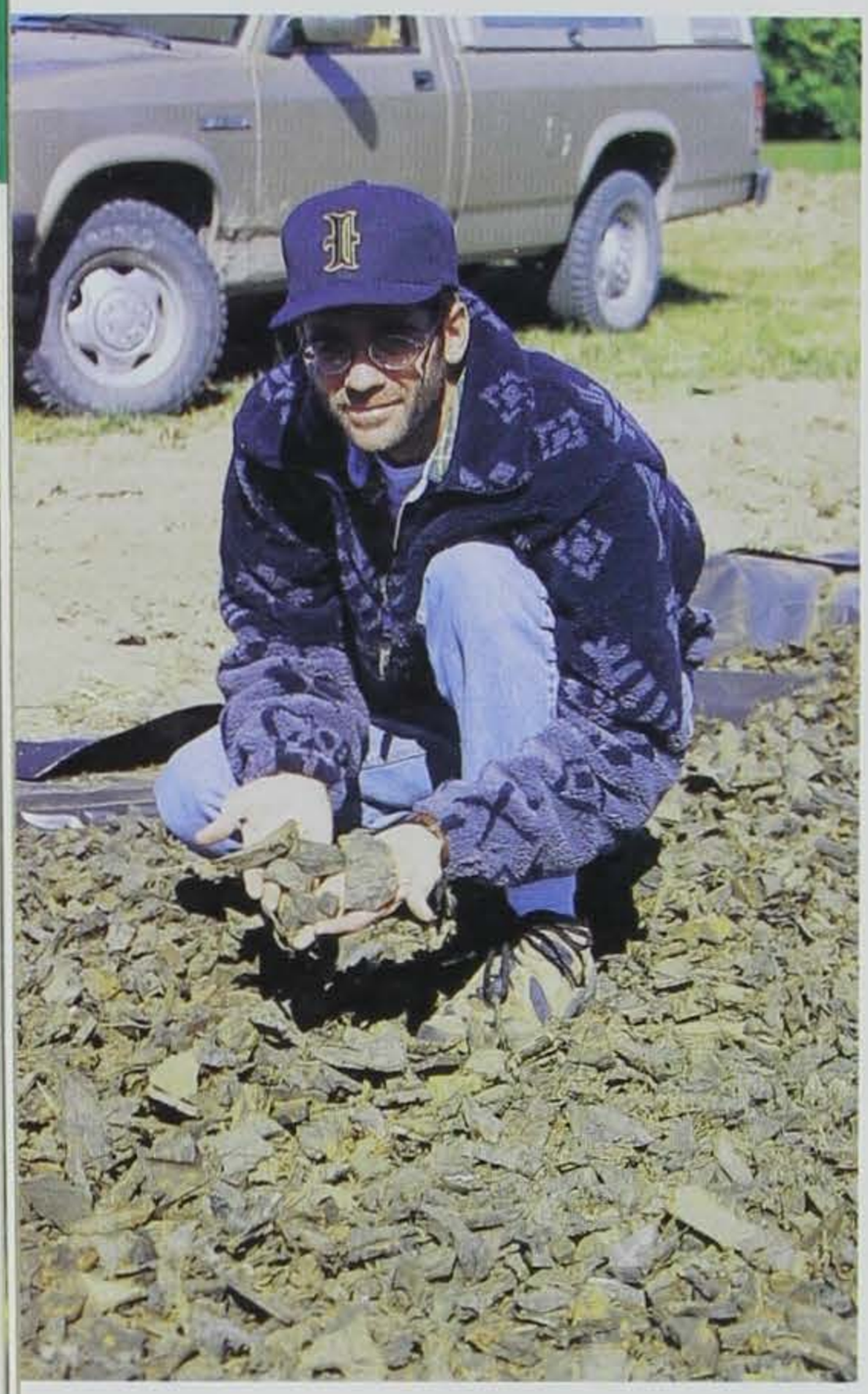
"Because septic systems are out of sight, out of mind, it is kind of a pain to consider replacing your system. At the start, Andrew Miller wasn't sure what he was going to be getting into," said Tom Sperfslage, environmental specialist for the Iowa Department of Agriculture and Land Stewardship, of the Amish family's participation in the program to improve septic systems around Lake Fisher.

The proposal to upgrade their septic system posed an ethical dilemma for the Millers on two different levels — by asking the Amish family to use a new technology and to work with governmental entities, including the acceptance of cost-share money for the improvements.

Sperfslage said there was a genuine resistance to the proposal when the Millers were first approached about participating.

"Andrew Miller had a new septic tank installed in the late 1980s and he felt a system that new should still be working properly, making an upgrade

Rubber tires are being used on an experimental basis in the wooden wheel world of the Amish community near Bloomfield. Although the Amish don't use rubber tires on their own vehicles, one of their families is part of an experiment using chipped tires for the construction of a new septic system on their farm.



Tom Sperfslage, an environmental specialist with the Iowa Department of Agriculture and Land Stewardship, shows chipped tires being used for the construction of new septic systems in the Lake Fisher watershed near Bloomfield.

unnecessary. What made the difference was showing him the end of the pipe of the existing system where you could even see solids and paper products coming out. After that, he (Andrew) wanted to know what could be done," Sperfslage said.

While the people of the Amish community near Bloomfield still shun the use of rubber tires on their buggies and avoid participation in government programs in general, Menno Miller is philosophical about the septic improvements done on his farm.

"When we built our new home, we knew it would also be a good time to take care of my parents house since we live next to one another. If doing this is good for the city water, then that's good, too," Menno said.

The Amish also pay income and property taxes, so Menno said he was not opposed to accepting the cost-share money for the septic improvement.

"The cost-share made it easier to get all this done," Menno said.

The project underway in Davis and Appanoose counties is taking a double-pronged approach to a pair of troublesome environmental problems — disposal of waste tires and effectively treating septic system discharges. All of the septic systems are being done as part of a $100,000 grant from the

Septic Systems Likely To Fall Under Close Scrutiny

Private septic systems will likely come under more stringent environment scrutiny in coming years, according to Brent Parker, an environmental enginee with the DNR.

"The impact of inadequate septic systems on overall water quality could b significant in Iowa, but at this point we' still unsure about how much. We do know, however, that inadequate systems do have a significant adverse impact on water quality in some locations," Parker said.

New scientific techniques are being used to distinguish pollution caused fron septic systems. One of the primary new tools being used by researchers is caffeir testing since livestock and wildlife are not consumers of products such as coffe and soft drinks.

"We have had streams in Iowa wher high caffeine levels have been detected indicating the source of the pollution is human rather than animals," Parker said.

If raw numbers are any indication, addressing concerns about septic system will provide a formidable challenge. The DNR estimates Iowa may have up to 300,000 private septic systems in the stat and up to two-thirds of those may be inadequate in terms of treating septic waste. The number of private septic systems also continues to grow at

Waste Management Assistance Division of the DNR.

This grant has become an integral part of the Lake Fisher Water Quality Project devoted to improving water quality for the 100-acre reservoir that provides drinking water to the residents of Bloomfield. The grant is allowing an additional seven septic systems to be installed in the Lake Fisher watershed rather than the five that were originally planned, said Sperfslage.

"With this bit of 'venture capital,' we're getting 12 new systems for the price of five and we'll be knocking some serious potential pollution sources out of this watershed for the long-term. The work we're doing with septics and erosion control practices means the Lake Fisher watershed should be protected for the next 50 years when we are all done," Sperfslage said.

Protecting the 1,380-acre watershed is particularly important in that the 100-acre Lake Fisher serves as the water supply for more than 3,100 residents in Bloomfield and surrounding areas.

Improving the water quality in Lake Fisher was an important factor in the decision Bill Redmon made to also have a new, chipped tire septic system installed for his residence.

"My wife and I don't drink the water in Lake Fisher because we are on the Rathbun Rural Water Supply, but our daughter does. It's important that the water be as clean as possible," Redmon said.

An added benefit, according to Redmon, is that the improvement will increase the value of his property.

"I also think using the old tires is a good idea. It seems like used tires just keep piling up and if we don't find good ways of using them, we're going to have old tires coming out of our ears," Redmon said.

The other eight systems being built with chipped tires are in the Centerville area where an administrative order was in effect because the systems were not adequate, according to County Sanitarian Donnie Herteen.

"All the people who installed new systems in the Lake Fisher watershed received a major benefit and we were able to get something positive accomplished without having to use enforcement. The work we have done is bound to help water quality because the old systems just weren't working properly," Herteen said.

The program using waste tires for the septic system replacements provides a 100 percent cost-share to the property owners for the secondary treatment portion of the system. The U.S. Environmental Protection Agency (EPA) and the DNR provide 75 percent cost-share for the primary treatment system (septic tank), making the average out-of-pocket cost to each homeowner just over $550 for a $4,000 system. The 20 septic systems being done in southeast Iowa will use 300 tons of tire chips from more 30,000 waste tires.

"Basically, the chipped tires are being used in place of river rock and other aggregate to distribute waste through the system," Herteen said.

The chipped tires — at least initially — appear to be a viable alternative to more costly materials, according to Brent Parker, an environmental engineer with the DNR.

"We have poor soils in southern

approximately 5,000 — or an average of 50 per county — each year.

For the most part, cities in Iowa have central sewage treatment systems that have addressed many of the concerns about point-source pollution. Now, the U.S. Environmental Protection Agency has begun to focus more on what is considered nonpoint-source water pollution, shifting more attention on what is happening in rural areas.

Even though more regulation of private septic systems is anticipated in the future, Parker said societal pressures will also come about to improve how waste is handled in rural areas. Driving the movement toward better waste handling systems is a shifting demographic tide occurring in rural areas.

Residential homeowners now outnumber farmers by a three to two margin in unincorporated areas of Iowa. Much of the new construction of homes in rural parts of the state is also coming in the form of large subdivisions, often resulting in properties no longer being big enough to construct adequate leach fields used in traditional systems.

"There are several problems associated with new homes being built in the rural areas. Many of the developments aren't being built in cornfields, but are gravitating toward more scenic locations that may be low spots next to streams and woods. These areas generally have poor soils unsuitable for constructing an efficient septic system, particularly in southern Iowa where a lot of the soils have poor percolation," Parker said.

Much of the new development in rural areas also tends to be higher-priced housing occupied by high-income residents who have less tolerance for some of the pitfalls associated with septic systems.

"Some of these homeowners who have built three-, four- or five-hundred thousand dollar homes aren't going to put up with systems that end up with black water on the ground somewhere. They are less tolerant of having septic discharges than farmers who are used to being around livestock and manure," Parker said.

About 90 percent of the new construction in Iowa uses on-site rather than central (such as city) sewage handling systems. The regulatory responsibility for these developments rests on the counties.

"A lot of the counties are really struggling to deal with new development issues right now," Parker said.

--KB

The project to construct 20 new septic systems in Appanoose and Davis Counties will use 300 tons of tire chips generated from more than 30,000 waste tires. The systems are being done on an experimental basis to determine if the chipped tires provide an adequate substitute for sand and river rock in the construction of septic systems.

Iowa that make it expensive to construct effective septic systems. The sand and rock needed is fairly expensive. Chipped tires is one technology being looked at as a way to keep the price of installing new systems reasonable," Parker said.

The project using waste tires is being done on an experimental basis in Iowa because there are still a couple of questions that need to be answered.

"First, we need to know if the bacteriology will work the same with the tires as it does with rock where a treatment media is created. Effective treatment relies on bacterial activity, not bacterial inhibition and we still don't know how this is all going to work using tires.

"The other thing we need to find out is if there is anything used in the manufacturing process of tires that will leach out over time. We want to make sure we're not solving one problem and creating another by using this type of system," Parker said.

The Lake Fisher Water Quality Project is a three-year effort to improve water quality in Lake Fisher through improvements to the watershed.

The project is financed primarily through the Iowa Department of Agriculture and Land Stewardship, Division of Soil Conservation along with additional money from the City of Bloomfield and the Iowa Department of Natural Resources. These agencies are using U.S. Environmental Protection Agency grant money from Section 319 of the Federal Clean Water Act.

Goals of the project include:

- Treating more than 900 acres of agricultural land with a combination of terraces, water and sediment control basins, ponds and constructed wetlands with a goal of reducing the amount of sediment reaching Lake Fisher by 60 percent.
- Reducing the amount of nutrients, pesticides and organic materials flowing into the lake by 50 percent.
- Reducing the amount of bacteria delivered to the lake by 50 percent through improvements to septic systems within the watershed.

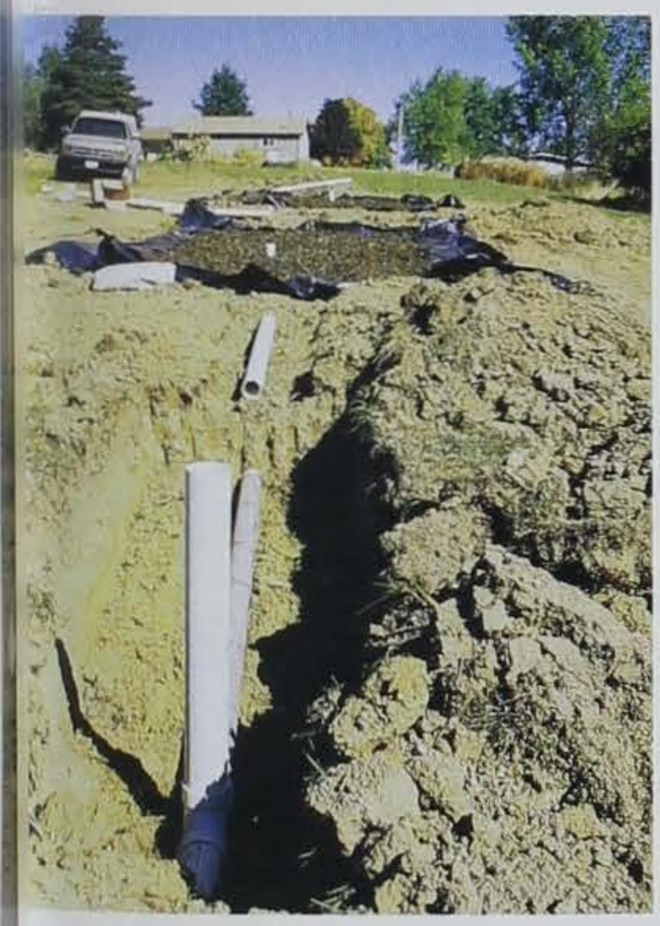
The Lake Fisher project is a joint effort of the Iowa Department of Agriculture and Land Stewardship, DNR, the U.S. Natural Resources and Conservation Service, the U.S. Environmental Protection Agency, Davis County Soil and Water Conservation District, Davis County Supervisors and Engineers Office, Davis County Department of Public Health, Davis County Conservation Board, City of Bloomfield, Pheasants Forever, Iowa State University Extension Service and the U.S. Farm Service Agency.

Herteen said each of the systems installed is being tested monthly for at least the next two years to determine the effectiveness of treatment and if there are any substances leaching from the tires.

But for now, Sperfslage said he has been particularly pleased the additional money from the grant was made available and is also pleased with the willingness of property owners to participate.

"We've had some people with limited financial resources and yet have taken great ownership to make the changes necessary to improve water quality. The grant has meant an additional $2,000 to each property owner putting in a new septic system and in this watershed, that means a lot. It's particularly satisfying for me to see this money be put to good use and to go where it is needed," Sperfslage said.

Kevin Baskins is an information specialist working with nonpoint-source pollution programs.



Work in progress on a new septic system using waste tire chips. The photo above shows the lower end of the system prior to the tire chips being added. Tire chips have already been added on the upper end of the system with the residence being served seen in the background.

Ken Formanek

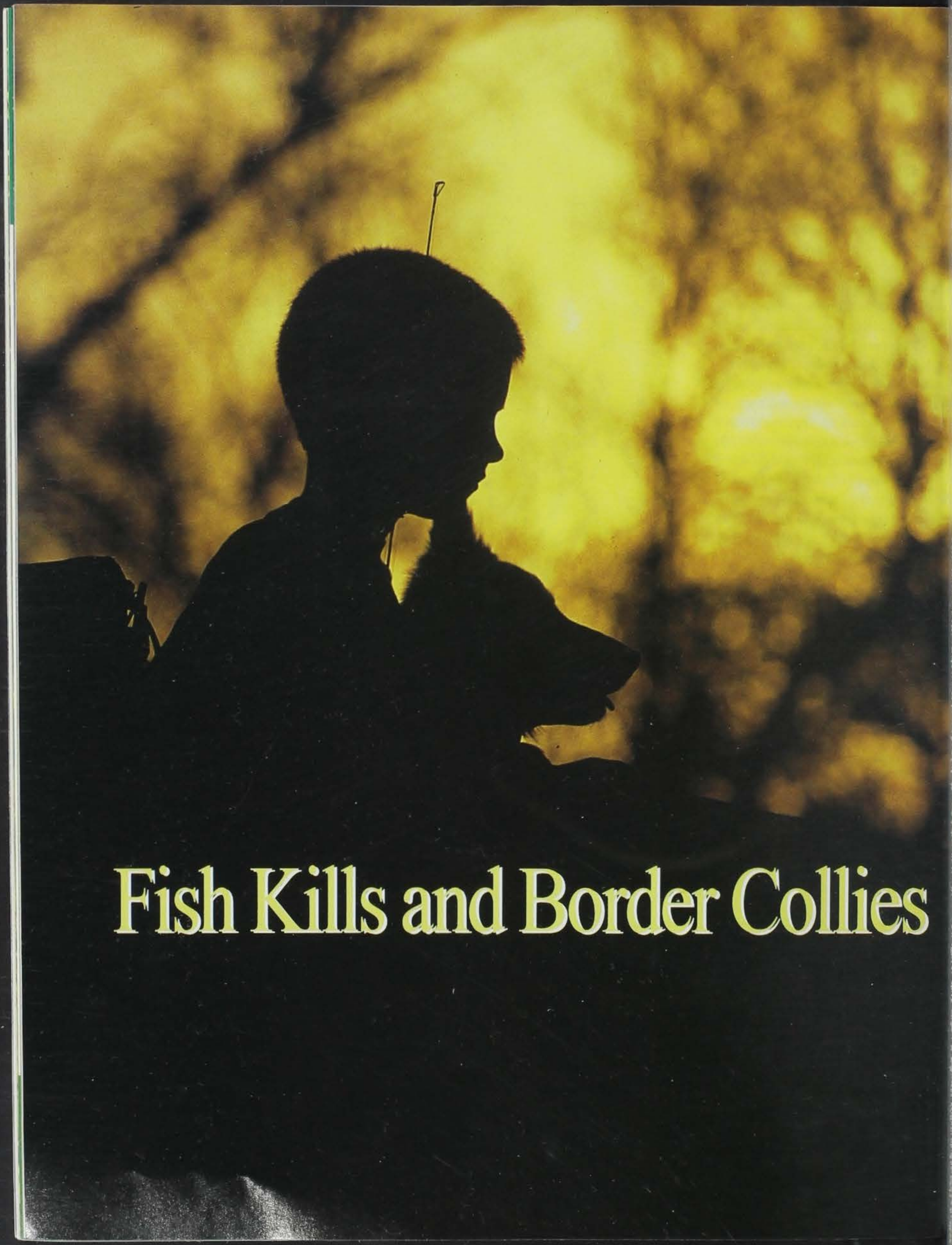
State Grants More Than $1 Million To Promote Proper Waste Tire Management

The Waste Management Assistance Division of the Iowa DNR recently granted $1,075,832 to 72 counties for the promotion of proper management of waste tires at the community level.

Twenty-three of the 35 grants went to single counties in amounts ranging from $8,000 to $61,888. The remaining 12 grants were awarded to solid waste commissions or agencies, health departments or councils of governments serving multi-county areas in amounts ranging from $8,977 to $140,000. The Bi-State Regional Solid Waste Commission, serving the counties of Cedar, Clinton, Dubuque, Jackson, Muscatine and Scott, was given the largest single appropriation.

The Waste Tire Management County Grant Program enables counties to establish and implement local public education programs that provide information on proper tire maintenance, the hazards of improper disposal and options for proper tire disposal normally available in the area. Counties are encouraged to host a waste tire amnesty collection event by selecting a designated site that collects waste tires from the public without a fee.

Educational programs can include multimedia campaigns using television and radio public service announcements, billboards and other forms of advertising. Presentations to high school drivers' education classes, public libraries and local civic and youth groups are also used for educational outreach.



Fish Kills and Border Collies

by Jim Wahl

It was 4:25 p.m. on Friday and I was preparing to leave the office for the weekend. The phone rang and I was paged. The secretary said, "Jim, it is Bill Jinkinson with the Environmental Protection Division of the DNR." My heart sank. I knew what the call was about before I even picked up the receiver. "Jim we've got a report of a fish kill on White Fox Creek in Wright County."

"Darn!" I thought to myself. Now I'm going to miss my daughter's softball game tonight. When the report of a fish kill comes in everything else stops. We (DNR officials) drop everything and commit all of our attention to the problem at hand. Responding in a timely fashion is critical on fish kill reports and I knew that I would not only be skipping supper, but also any other plans I had for that evening.

"Where exactly is the kill located," I asked Jinkinson. After a brief discussion and a look at county and topographical maps I had a good idea of where to start my investigation. "We'll meet you down on site in about an hour," I told Jinkinson. After hanging up the phone, I summoned another fisheries employee to help me and we gathered up our gear -- maps, data sheets, tape measure, boots, small dip nets, bug spray, cell phone. I was grateful for the cell phone. We could keep in close contact with the environmental protection staff and hopefully carry out a more efficient investigation.

We stopped at the gravel bridge where the kill had been reported. A quick glace over the bridge told me the kill was substantial and fairly recent. Despite the 90-degree weather the fish were still intact and only starting to show signs of decomposing. From our initial stop we started to work upstream. Referring to our county map we stopped at every bridge. After checking five sites, we no longer observed dead fish. We now knew the kill originated somewhere between our last stop and the previous bridge.

We backtracked to the last bridge where dead fish were found. Jinkinson was on site and taking a water sample as we pulled up. "It's off the scale on the ammonia test," he shouted. Ammonia is extremely toxic to fish and whatever killed these fish was still entering the stream. "I'm going to hike upstream and see if I can find the source of our problem," Jinkinson reported.

"That's fine. We will go downstream now and check all bridges until we no longer find any dead fish," I reported back.

This is where we parted which is typical of most fish kill investigations. As a fisheries biologist, my job is to estimate how many fish were killed. This involves identifying the fish, determining their size and their numbers. Jinkinson's job, as an environmental specialist, is to determine the cause of the kill and try to locate a responsible party. "I'll let you know what we find," I told Jinkinson as we headed downstream.

We checked 10 bridges downstream before finding a site with no dead fish. The stream was much larger here and in fact was no longer White Fox Creek, it was the Boone River. Between the last two bridges, the smaller tributary stream (White Fox) had dumped into the Boone. The distance traveled and increased volume of water diluted the toxic qualities of the pollutant.

We had established a starting point and an ending point. Now was time for the dirty work to begin. Because of the length of the kill (approximately 12 miles), it would be impossible to count every fish killed. We needed to set up a sampling scheme to accurately reflect how many fish were killed without counting every fish. I used the guidelines for counting dead fish established by The American Fisheries Society -- a systematic sampling system to compute fish losses over a large area.

As we approached the first bridge to enter the water and start our counts, a local farmer stopped us. "I graze

Lowell Washburn

cattle through here and I noticed the dead fish. Is it safe for my cattle to drink the water?"

"I'm not sure ," I responded. "We know that ammonia is killing the fish, however we don't know the source. I would check with your veterinarian." We waded into the stream and after half an hour of work completed our necessary counts.

Several more stops and numerous counts were made before it was beginning to get difficult to see. With one more count we would have our investigation completed so we pushed on. At the last bridge a young boy road up on his bike with his faithful border collie following behind. Below the bridge was a deep pool and several dead carp were on the surface of the water. The youngster approached me and said, "Hey mister, are all the fish dead?"

"I don't know son, but it doesn't look good. Why do you ask?" I replied.

"I live on that farm next to the stream and I fish in this pool every night after school. I like to catch carp and frogs. They are some big ones in that hole. At least there used to be."

On my way home that night I started to think about the farmer and the young boy. The water in that stream and the critters that lived there were important to those people. It's too bad so many don't realize these values. I've lost track of how many times I've heard, "There's nothing in that creek, but a bunch of minnows and shiners. They're not worth anything." Well, I'm here to tell you they are. That kill on White Fox Creek resulted in the loss of 45,000 fish (mostly minnows and shiners), valued at $8,000.

In some cases, the responsible party is never determined, but in this case, it was. They were assessed the replacement value of the fish or $8,000. No fish were stocked. We don't have state hatcheries that rear carp or minnows. In time, fish will distribute themselves back into the damaged area.

Recently a new program was established to benefit streams that suffer fish kills. An agreement between the DNR and the Department of Agriculture will use fines collected for fish kills to make environmental improvements on streams where kills occur. This past year, more than $110,000 were collected from fish kills and will be used for stream improvements in 11 counties. Hopefully, this program will offset some of the damage to the local environment where these kills occur.

When I got home that night the kids were already asleep in bed. I asked by wife how the softball game went. She said, "Well you missed seeing your daughter hit her first home run!" I *hate* fish kills, and so do young boys with border collies.

Jim Wahl is a fisheries biologist at Clear Lake.

Lowell Washburn

Even with the best scientific methods estimating a fish kill is a time-consuming task.

Clammity On The Ole Miss

by Scott Gritters

Clams, admittedly, are not the subject Pulitzer Prizes are won on. They'll never command the attention and respect of Iowa's trophy whitetails, brilliant ringneck pheasants or quality fishing. Nor will their images be collected in scrapbooks, displayed and admired whenever company stops by for a visit. Rarely will they capture the media spotlight, unless of course they are immersed in controversy.

No, clams live a seemingly rudimentary, even dull life. They sit in the mud and eat. They are the aquatic equivalent of Homer Simpson — lazy, ugly, even borderline useless.

Or are they?

To truly appreciate the clam and its value (and to keep reader interest), one needs to look at its historical, economic and environmental significance.

Clams were important to the American Indians and early Europeans who settled in the Mississippi River floodplain. Clam middens (piles) have been discovered at Mississippi River archaeological sites, suggesting the earliest modern Americans roasted clams in fire pits on the banks of the Mississippi. Clams were an important food source because, at least until the birth of primitive hunting and fishing tools, they were much easier to harvest than other, more elusive fish and wildlife.

To native Americans, clams were more than just a food source. The last large native American tribal culture along the Mississippi — the Oneotas — can be easily distinguished from earlier tribes by their use of clam shell-tempered ceramic pottery.

Jerry Leonard

Clam harvest on the Mississippi.

The history of Mississippi River clamming is also quite rich and colorful. Clams were principally used to make pearl buttons for clothes. The Guttenberg newspaper, describing clam fishing on the Mississippi River in its June 1899 edition, stated "The clam fishing industry along the Mississippi is rapidly becoming a great industry. The work is being carried on at nearly all points along the river." However, like so many other wildlife resources at the time, huge clam beds were depleted around river towns like Muscatine, Fairport, Guttenberg and Lansing. In addition, with the advent of plastic, the demand for clam shells dropped dramatically.

However, in the 1980s, the Japanese found clam shells could be cut into beads and imbedded into oyster shells, in time producing cultured pearls. The result was a more uniform pearl that

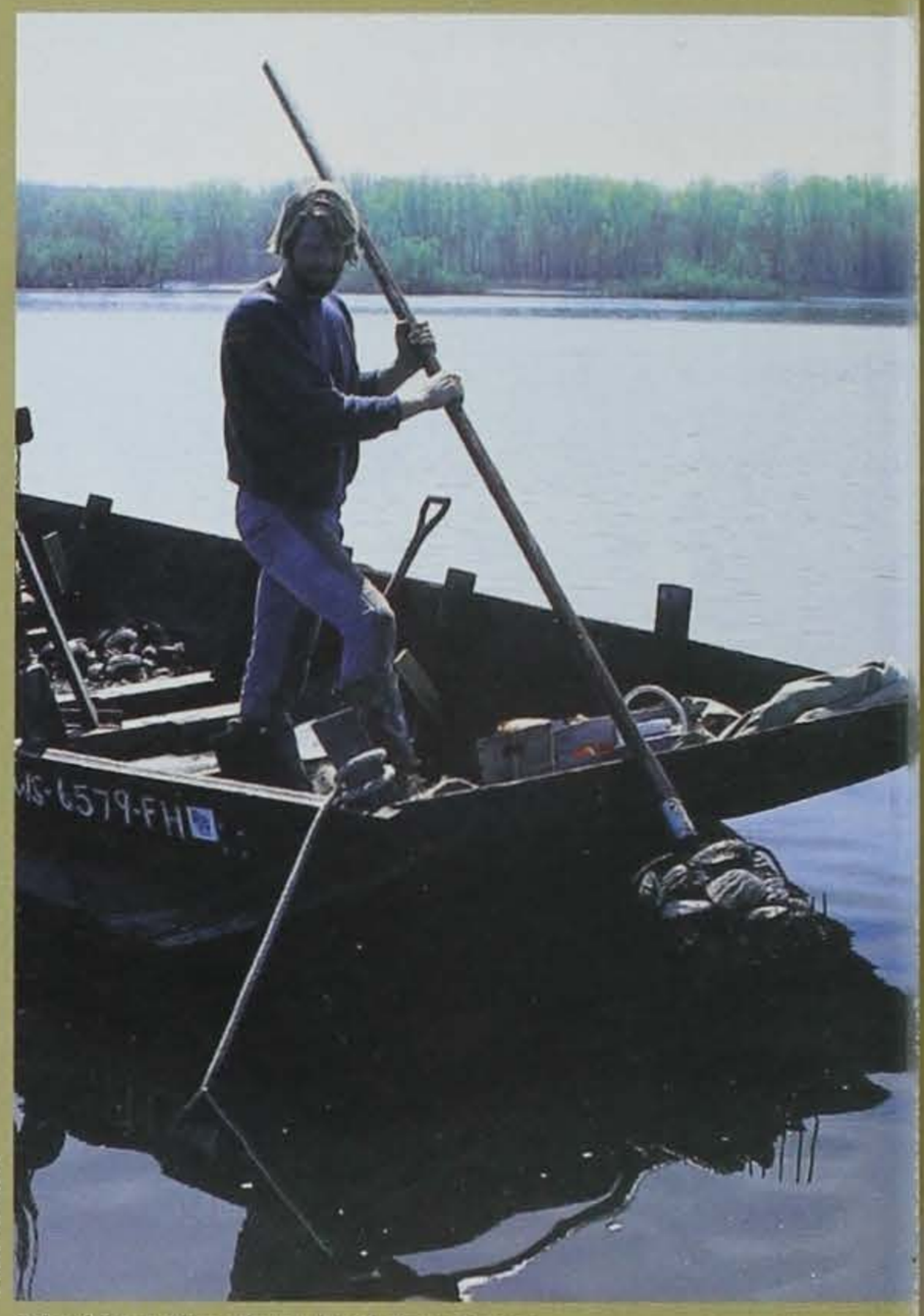
could be produced quicker and cheaper. The discovery resurrected the clamming industry. Clamming in Iowa on the Mississippi peaked in 1990 with nearly 950 tons of shells harvested and exported, mostly to Japan. The value of this industry at its peak was nearly $3 million.

Numerous factors contributed to the demise of the industry, such as loss of habitat, overharvest, pollution problems, changing regulations and the collapse of Asian markets.

The significance of clams goes well beyond food and economics. Clams are important ecological indicators since they are sensitive to environmental degradation such as siltation and require clean, pollution-free water to thrive. Those interested in the environment should be concerned about their welfare. Freshwater mussels may be one of the most endangered group of organisms in the United States.

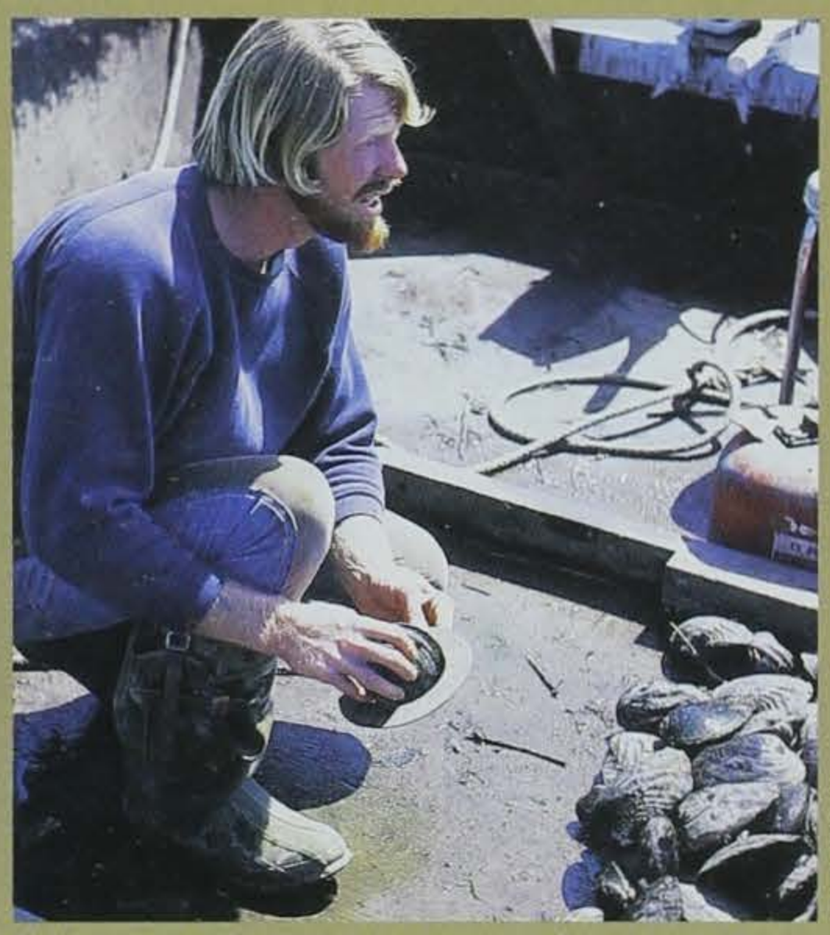
Mussels are on the front line of pollution because they constantly ingest what is in the water. Clams feed by siphoning water through an internal digestive tract, where plankton and algae are filtered and digested. In the process, clams may absorb toxins found in the water and sediment, such as heavy metals, pesticides, industrial pollutants and other naturally occurring toxins. Because of this, and the fact their tissue is tough and chewy, freshwater mussels are not considered good table fare. Saltwater mussels are the kind typically found in restaurants and supermarkets today.

The distribution of mussels is complicated by their reproduction process. The male flushes sperm through its outgoing siphon and the female must take in the sperm through its intake siphon. In habitats with flowing water, such as rivers, this is a hit-or-miss process at best.



Scott Gritters

Working the river bed for clams



Scott Gritters

A commercial clammer surveys his harvest.

Most mussels require a fish (sometimes salamander larvae) to complete the life cycle. Upon fertilization, the miniature bivalve larvae of the female, known as glochidia, attach to the gills of fish, some for as many as several months. Pregnant mussels attract the host fish by dangling out a fishy-looking appendage. When the fish moves in to investigate, the female mussel expels the young glochidia in the face of the fish.

Some mussel species can be quite picky about which species of fish they use to raise their young. If the glochidia attaches to an undesirable host fish, they soon drop off. If the larvae doesn't find a suitable host fish within a couple days, it usually dies. Therefore, when a species of fish or salamander becomes extinct, often an associated mussel species is lost. Dams that block routes of migratory host fish can also deny access to the hitchhiking glochidia.

The reproduction process is an all-too-important facet to the viability of the species considering it takes 10 to 20 years for some clams to become sexually mature.

New Threat

In the Mississippi River, an alien exotic invader is also threatening many freshwater mussels. Zebra mussels were first discovered in North America in 1988 in Lake Erie, most likely introduced through ballast discharge from an European vessel. They have since infested the Great Lakes, encrusting already troubled mussel beds. In recent years, zebra mussels have found their way to Iowa both in the Mississippi and Missouri rivers.

Zebra mussels compete with native mussels for space and food. Large colonies can filter *all* of the water in a lake or stream, removing plankton which serve as food for other mussels and larval fish. Zebra mussels grow in thick mats, suffocating both freshwater mussel and fish spawning beds.

Zebra mussels have not yet affected Iowa's inland mussel resources; however, very few native mussel species remain inland. In 1987, Dr. T.J. Frest did a survey of Iowa's interior rivers and streams, and found interior mussel populations "have been largely depopulated of even the most common species." He even surveyed the Shell Rock River, named for its strong population of clams. Based on his findings, the river's name could easily be changed to "the river formerly known as Shell Rock."

(restore lost populations).

Finally, freshwater mussels are important to the anglers of Iowa. First, clam beds are often principle spawning areas for walleyes and saugers in the Mississippi. These beds simulate rock cobble substrates that are ideal walleye spawning habitat. Good spawning habitat often translates into good fishing. Secondly, by filtering the water, mussels convert primary energy into an important food source for fish. Lastly, several species of fish and wildlife directly feed on small clams, most notably, the freshwater drum which feeds heavily on native mussels. Many elitists snub their nose at drum, but surveys show many anglers target these hard-fighting and tasty fish. Mink, raccoons, snapping turtles, great blue herons and other predators also feed on clams.

Scott Gritters

Prior to the advent of plastic, clams shells were widely used as material for button manufacturing.

Mussels should be of interest to a large variety of people. Iowa will be an ecologically poorer state if we continue to lose our mussel resources.

Mussels have value beyond monetary factors. Clams have played a significant role in shaping the culture, history and economics of Mississippi River communities. They are environmental harbingers that say we must do a better job with our water quality and can act as scorecards for how we treat our aquatic resources. They have a unique biology, primitive yet complex.

The freshwater mussel is a creature with a life cycle completely different from that of a fish. However, the same tactics used to promote good fisheries will also improve mussel resources. These factors include improving water quality, protecting clams from overharvests and promoting diverse aquatic habitats. Finally, as river managers we need to become good "clam counters" so we can make solid decision pertaining to harvest levels and future protections needed to ensure their survival in Iowa for future generations.

Scott Gritters

Scott Gritters

A buckhorn (right) and washboard clam.

A New Challenge

A new challenge to river managers is the need to update the ability to assess the population status of mussels in the Mississippi. Mussel populations should be inventoried regularly, with the excess stock made available for sale on the market. We need to monetarily invest in a complete inventory analysis (count clams), protection of our assets (habitat) and diversify our portfolio

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Scott Gritters is a fisheries biologist stationed in Guttenberg.

Parks Profile

Preparing For A New Millennium

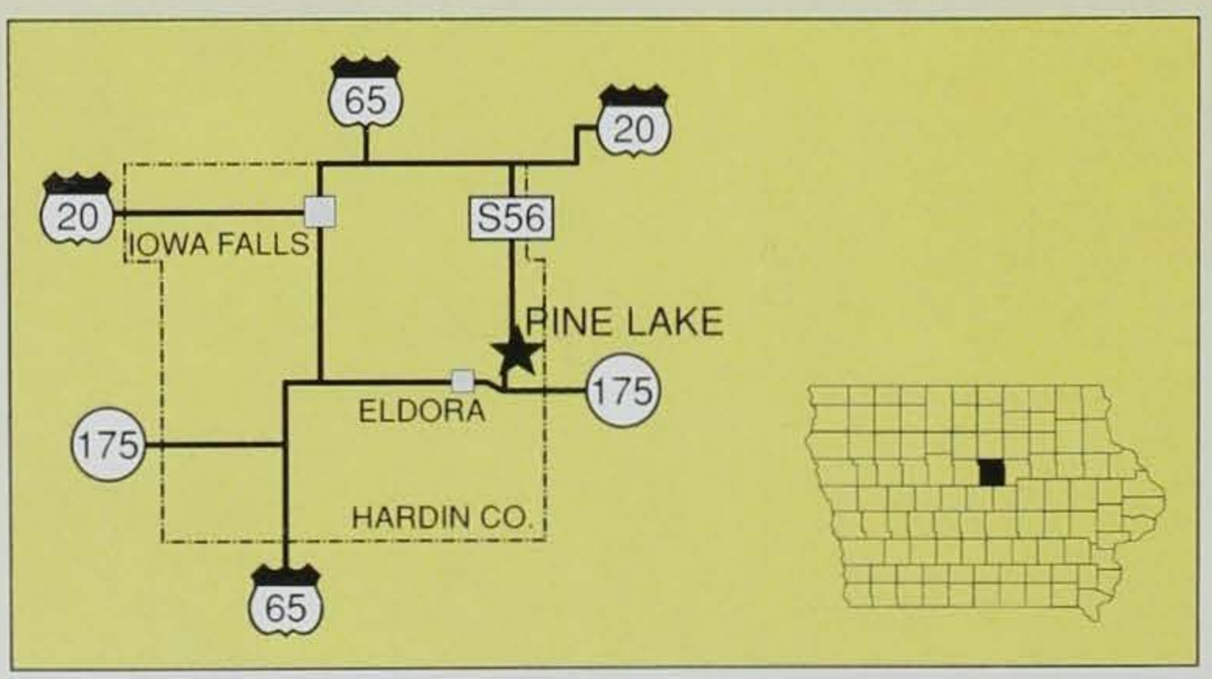
Pine Lake State Park

by Terry Manning

No other period in history has done more to shape the nation's park system than the post-Depression era of the 1930s and early 1940s.

It was during that time the Civilian Conservation Corps (CCC) and Works Progress Administration (WPA) programs were created, mostly to provide jobs and income for families suffering through the Depression, but also to satisfy a growing demand for more recreational areas. Crews would come into an area, set up camp and go to work. In less than a year they were gone, leaving behind a picturesque, yet functional testament to their work.

However, after more than 60 years, many of the structures built during the CCC and WPA days are showing signs of age. Many are in dire need of renovation and remodeling. Due to a backlog of capital improvement projects and a growing list of repair needs, the Restore The Outdoors (RTO) program was created in 1997. Using legislative appropriations of $3 million annually over a five-year period, RTO has set out to reverse the deterioration



at state parks. Thanks to RTO, Iowa's state parks are seeing more improvements today than at any time since the glory days of the CCC and WPA.

Pine Lake is one such state park undergoing a facelift thanks to RTO.

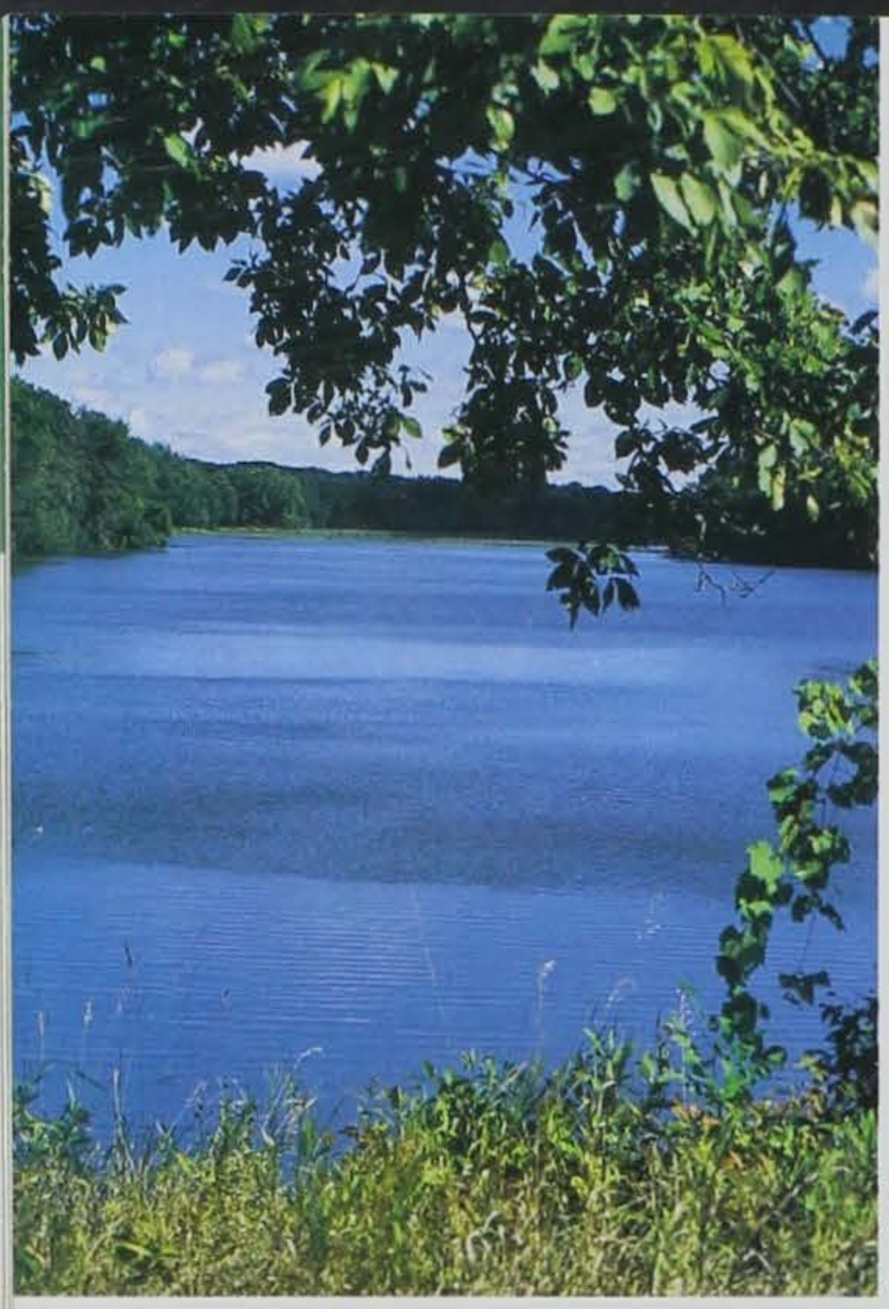
For instance, the Pine Lake lodge will receive a $210,000 renovation, the most significant update in its nearly 75-year history. Although substantial changes will be made — such as converting the facility to handicapped accessible, tiling the floor and replacing bathroom fixtures — the true character of the architecture, of course, will be maintained.

The beach concession building, which has sat idle for the last five years, will be converted into an open shelter facility. Access will be improved on three sides for picnicking and to improve natural lighting. Vending machine services should be available as well. The shelter will have new lighting indoors and outdoors and electricity will be available. Restrooms will be handicapped accessible. The lodge will also feature a new outdoor fountain, as well as a shower tower (outdoor shower facility) for use by swimmers. The building can be reserved for about $40 per day (state park lodges are rented for day-use only) beginning in May of 2000.

Near the beach house and camping area, there are already signs of the new Pine Lake Bike Trail, which will start at Deer Park in Eldora near the Iowa River, cross Pine Creek, and continue around the north side of the lake. The concrete trail will be 2.2 miles long and 10 feet wide. Construction of the trail is currently under way, and work

Pine Lake lodge is undergoing extensive renovation both inside and out.

Above center: Fall settles in on Pine Lake lodge. Photo by Mark Wolfe.



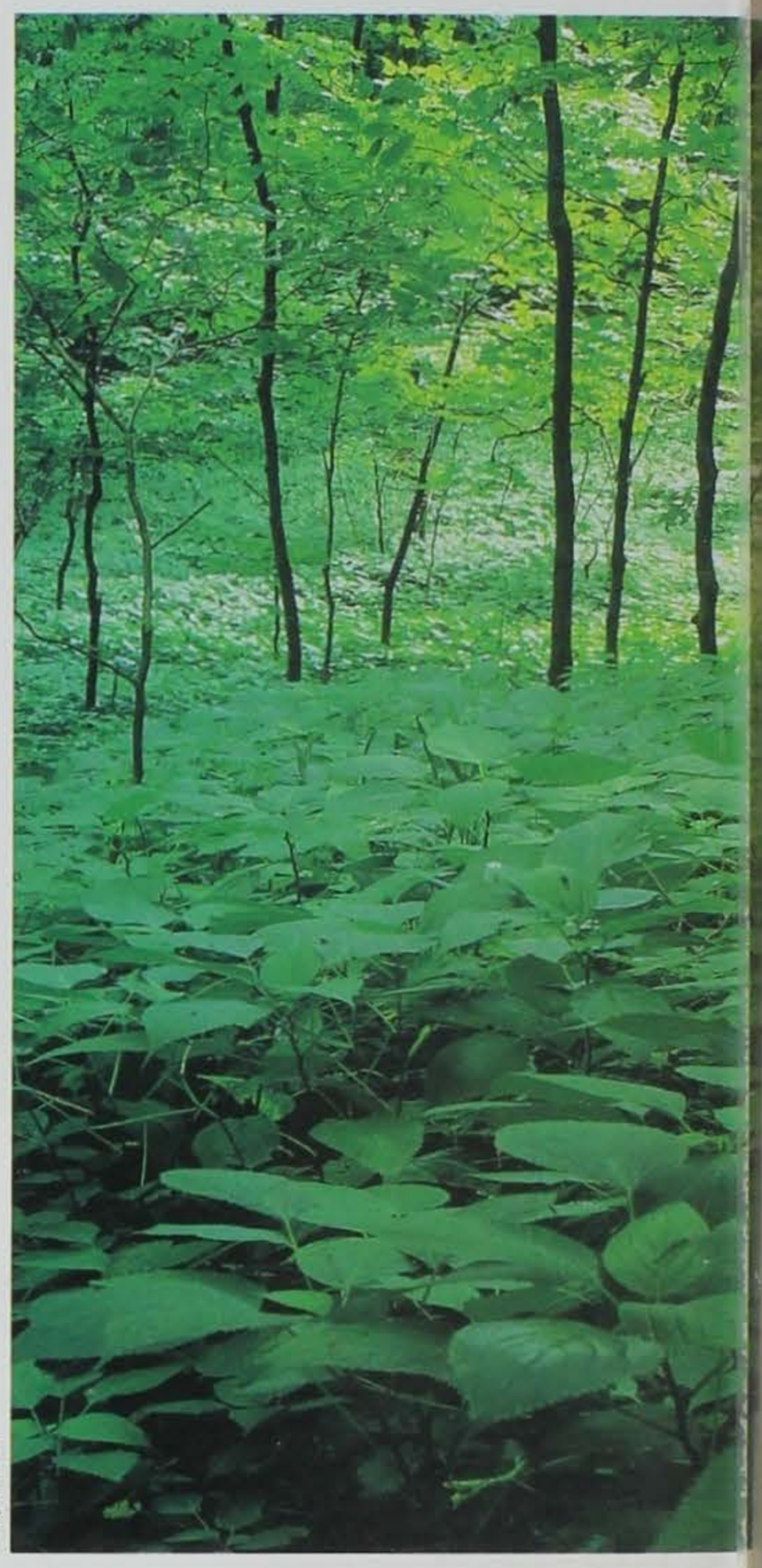
Clay Smith

should be completed by the fall of 2000.

Results of a recent seawall project in front of the boat rental building can already be seen. The project was implemented to help stabilize the shoreline and give people better access to boating facilities. Included in the project is a new handicapped-accessible sidewalk. These improvements should enable all people better access to the boat rental area.

Fishing in the Upper and Lower Pine lakes, Pine Creek and the Iowa River, all of which are in or border the park, continues to provide a varied experience for visitors. Anglers will find healthy populations of crappies, bluegills, largemouth and smallmouth bass, northern pike, channel catfish, and of course, the ever-popular bullhead. In fact, DNR fisheries staff were impressed with the lakes' fish count taken during a survey in September. The Pine lakes have provided anglers with great fishing this year, and the signs are there for this trend to continue.

The unique sandstone cabins, updated in the early 1990s, are among the most popular in the state. The cabins are air conditioned, rent year-round and are the only cabins in the state equipped with large keystone fire places. Of the four cabins, one is handicapped-accessible and two have an extra bedroom. All are nestled beside Pine Creek and face the scenic Iowa River.



Clay Smith

The Pine Lake campground is also a frequent destination for the public.

It is expected, over the next several years the park will offer users more and more in terms of services and outdoor activities, making a stay at Pine Lake a more enjoyable and rewarding one. Although visitors will occasionally face ongoing construction, the improvements should significantly add to the outdoor experience.

Clay Smith

■ (upper left and right) The view and scenery at Pine Lake State Park can be spectacular.

■ (above) Strolling along the trail is a rewarding way to experience the park. A new 2.2-mile paved trail is currently under construction.

Terry Manning is the park ranger at Pine Lake State Park.

Building A Better . . . Waterfowl Nest

by Dave Hoffman

For thousands of years trumpeter swans and other waterfowl survived and reproduced in North America without human assistance.

Since the arrival of humans, these natural habitats began changing, forcing waterfowl to survive on a small fraction of the habitat once available. To help maintain waterfowl populations, wildlife biologists developed various techniques to improve waterfowl habitat and nesting success.

The trumpeter swan is one species responding to such efforts. Trumpeter swans commonly nested in Iowa prior to 1893 but were extirpated shortly thereafter. Because more than 95 percent of Iowa's wetlands have been drained, restoration of these environments is one of the keys to restoring trumpeter swans to Iowa.

Many of these restored wetlands contain artificial islands. The first trumpeter swan production in more than a century occurred in 1998 when a pair successfully nested and produced cygnets on an island constructed on a small farm pond in eastern Iowa. Artificial nesting islands or floating structures can be very beneficial where natural nesting sites are scarce.

Floating Structures

Floating structures, like the example below, are readily used by trumpeter swans and other waterfowl, but are often plagued with problems. They have the advantages of not being affected by water level fluctuations, provide fairly safe nesting and loafing sites for waterfowl and their young, and are commercially available.

The disadvantages are they are usually quite expensive, can be damaged by ice on large bodies of water if not removed each fall, can be blown to shore by wind and wave action, can become water-logged and sink, and are susceptible to muskrat damage. Floating structures should also be placed at least 50 feet from shore and anchored to the bottom. Given these drawbacks, floating structures should only be used where other options are unavailable or where special care will be taken to avoid these problems.

There are several different flotation materials or devices suitable for use in floating structures. Styrofoam is readily available and quite durable, but needs to be covered with hardware cloth to protect it against muskrats. Metal barrels tend to rust and have a short life-span in the water.

Heavy plastic barrels are quite durable, but more susceptible to abrasion if care is not taken to fasten them securely. Styrofoam blown into the barrels may be an option to extend the life of a barrel. Plastic barrels can often be obtained at no charge. Telephone poles are extremely sturdy but tend to become water-logged in a short time.

Old floating docks can be fastened together to make a large platform and are usually very sturdy. Commercial flotation is also available and is very durable, but much more expensive.

Additional information can be found in *Nest Structures for Ducks*

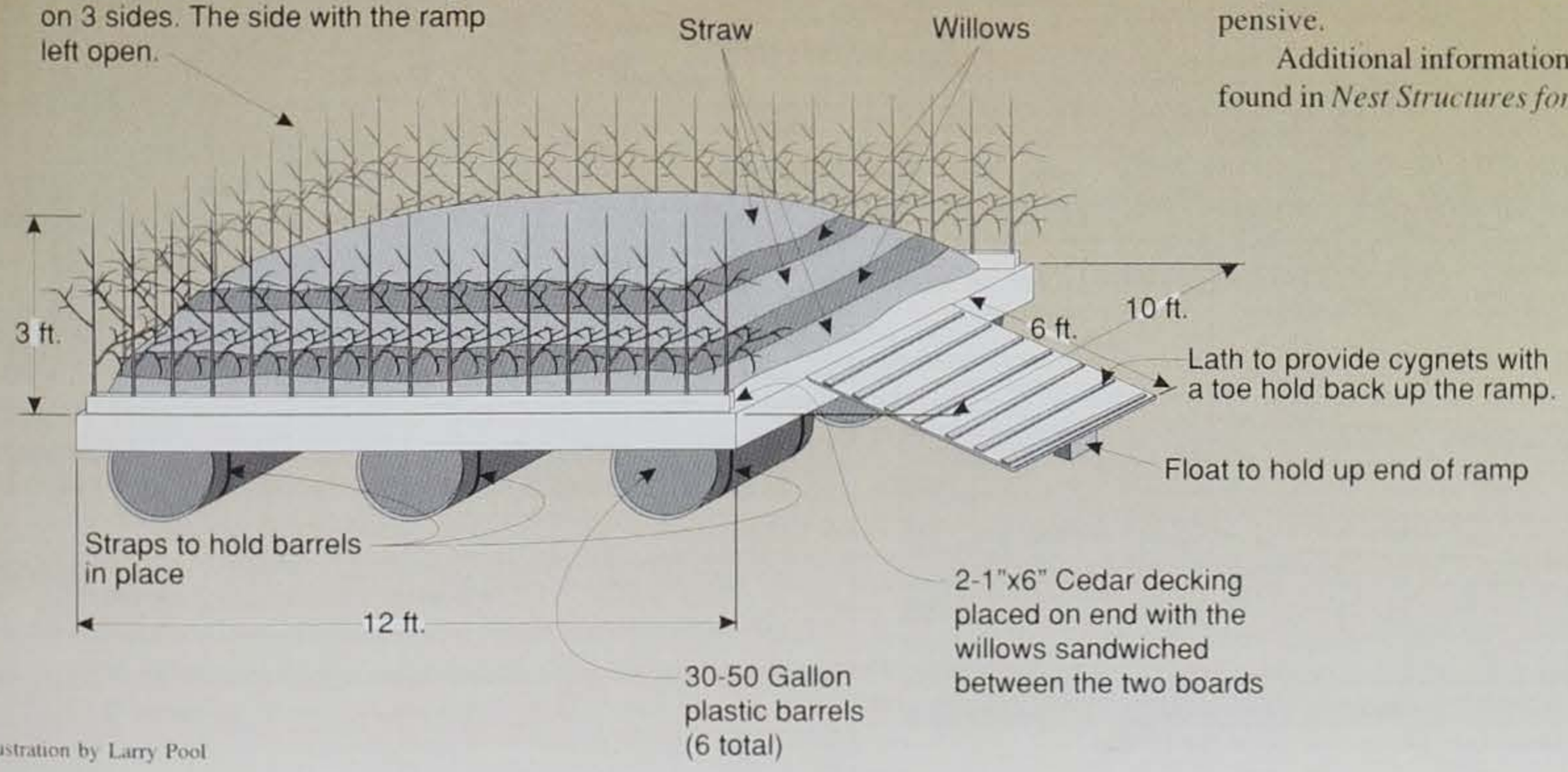


Illustration by Larry Pool

Practical Conservationist

Webster County Conservation Board

Floating nesting platforms should be anchored to prevent excessive movement (left). Willow "picket fences," also know as "privacy fences," provide swans with a sense of security and help keep nesting material in place. Willow cuttings should be placed close enough together (about one-half inch apart) so the swans are barely visible.

and Geese, available through the DNR or on the Northern Prairie Wildlife Research Center web site at www.npwrc.usgs.gov.

Nest Material and Maintenance

In the wild, trumpeter swans will use large muskrat or beaver lodges as nest sites or will construct a large mound (6-8 feet in diameter) out of existing sedges and cattail tubers. The nest material most often used in artificial structures, however, is course straw and small willows (three-fourths of an inch diameter) usually placed in alternating layers. The main purpose of the willows (4-6 foot long) is to keep the straw from blowing off. The branchy tops of the willows seem to work the best. Willows are often added vertically to the sides of the floater to create a picket fence which gives the nesting swans a sense of seclusion in areas with frequent human activity. **Alfalfa hay or any material that deteriorates rapidly or molds easily is strongly discouraged**. Moldy material can lead to an infection of the respiratory tracts of birds and mammals, which is often fatal in waterfowl if left untreated. Trumpeter swans seem to be particularly susceptible to Aspergillosis. Old nest material should be removed and new material added by March 1 each year.

Final Tips For Building A Floating Platform

- The "willow picket fence" provides the swans with a sense of security and helps keep nesting material from blowing away. When building the fence, space the willows close enough (about one-half inch apart) so the swans are barely visible.
- Willow picket fences should be placed on three sides of the platform, keeping one side open for ramp access. To build the willow fence, place the base of the willow stems on a 1x4-inch or 1x6-inch board and "sandwich" a second board on top. Fasten with nails or bolts. Fasten the three sides together and attach to the platform.
- Metal end braces work well to fasten platform corners together.
- Swans often select seculded areas when nesting in the wild. Take this into account when building the "privacy fence" and when choosing where to anchor the floater.

Dave Hoffman is a natural resources technician at Clear Lake.

Learning The Value of Habitat

by Gloria Baker

Background:

All around us, and all over the planet, wildlife habitat is being lost. Whenever land is paved for a shopping center, or divided and excavated for homes, and even sometimes when it is plowed for cropland — small animals lose their homes, and frequently their sources of food and water. As the small animals disappear, so do the larger animals that depend on them for food. Other animals, including those without any direct relationship to the food chain, may also disappear due to their intolerance to human intervention. Students can observe this phenomenon near their homes and schools. The process is happening in large and small ecosystems everywhere.

For example, many wetlands on the planet have been drained and filled in to make land for farming and development. When wetlands are filled in, many types of water birds, reptiles, amphibians, crustaceans and other life forms — including a wide variety of vegetation — are lost. Sometimes the animal forms can move on; most often they cannot.

The purpose of this activity is for students to simulate some of the potential impacts of land development on wildlife and its habitat. The activity will help students recognize land development is taking place all over the planet and understand the loss of habitat is generally considered the most critical problem facing wildlife today.

Procedure:

1. Review with students the elements necessary to create a habitat (food, water, shelter and space arranged suitably for the particular animal). After discussion to make sure the elements of habitat are clear, tell the students the activity involves simulating wildlife in its habitats.

2. Divide the students into four groups: herbivores, carnivores, vegetation (trees, shrubs, grasses, etc.) and land developers. If the students are not familiar with the terms "herbivore" and "carnivore," provide them with working definitions of those terms (herbivore - a plant-eating animal; carnivore - a meat-eating animal). Plan for three times as many herbivores as carnivores, with a small number of developers in proportion to the other two groups. The numbers (amount) of vegetation may vary. A good example is two developers, three carnivores, nine herbivores and six trees or bushes (vegetation).

3. Establish a large area — either in the classroom with tables, chairs and desks moved to the sides of the room, or outside — to represent a wildlife habitat area before development. The "land developers" are to stay on the sidelines at this time, simply observing the land and its wildlife inhabitants — or meeting on their own, nearby, to make plans for development. In fact, they can make their entrance rather suddenly once the wildlife habitat has been established — simulating the arrival of heavy construction equipment.

4. Provide each "herbivore" with:
   - two desks or chairs to use as "shelter"
   - three pieces of green construction paper to represent food
   - one piece of blue construction paper to represent water
   - some of the vegetation portrayed by students

   Provide each "carnivore" with:
   - one desk or chair to use as a "lair"

Objectives

Students will be able to:

1) Describe some effects human development of land has on plants and animals previously living in the area.

2) Evaluate the importance of suitable habitat for wildlife.

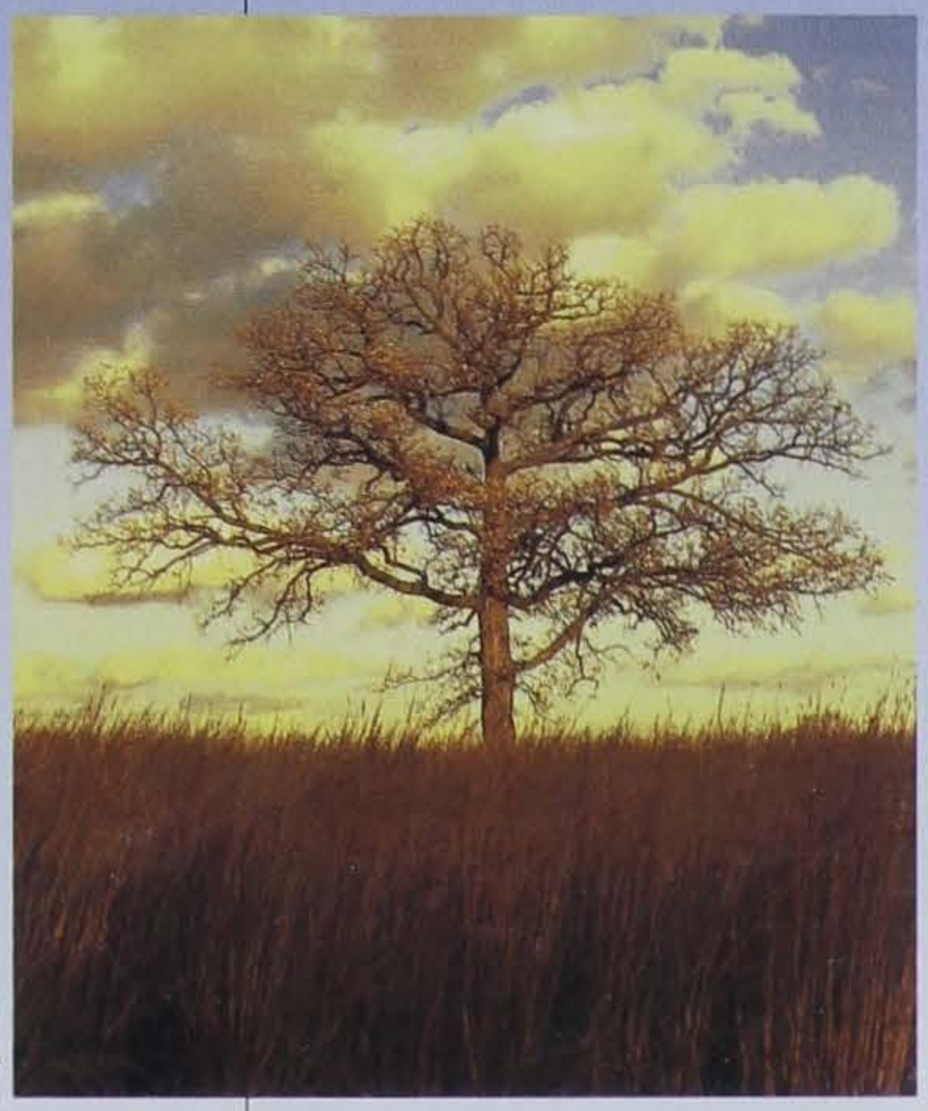
3) Recognize the loss of habitat is generally considered to be the most critical problem facing wildlife today.

Method

Students simulate a process of land development in a physical activity.

Materials

Green and blue construction paper; classroom desks; tables or chairs; five or six large bed sheets or blankets for a student group of about 25.



Roger A. Hill

Classroom Corner

Extensions

1. Conduct this activity twice, with the students trading roles the second time. When the former wildlife become land developers, they could try to produce a development plan that would benefit both people and wildlife in some ways.

2. Ask students to complete the following sentence, and discuss their response: "If I were going to build a house for my family in a previously undeveloped area, I would . . ."

Resource Material

This activity is a part of the *Project Wild Activity Guide*, an interdisciplinary, supplementary environment and conservation education program for educators of kindergarten- through high school-age young people.

- space equivalent to be used by three herbivores
- three herbivores as a potential food source
- one piece of blue construction paper to represent water
- some of the vegetation portrayed by students

5. Ask the "herbivores" to arrange the food, water and shelter — including the students who are "vegetation" — in a space to represent their habitat. Once the herbivores have arranged their habitat, ask the "carnivores" to move into the area to establish their lairs and water sources, keeping an eye on the herbivores as possible food sources. (For added interest, suggest the students identify what particular kind of animals they are and role play their characteristics. This phase takes about 10 minutes).

6. Once all the animals are established in their habitats, it is time for the developers to enter the picture. These developers have been given the opportunity to create a housing and shopping area. They may use three to seven minutes to construct their development, explaining their actions as they take them. They are restricted in how much space they can use. They may use the space equivalent to that used by three herbivores. The developers may use the sheets and blankets to build their development. They may remove trees (students), shelter (desks), food and water.

7. Once they have constructed their development, engage all the students in a discussion of what happened. What action took place? What are the consequences? Did any animal die? For what reasons? Could the developer have done anything differently to change the consequences? Could they have developed several scattered small areas instead of one large area, or vice versa, with what effects. Would it have reduced negative consequences for wildlife if they put the development in a different area of the habitat. Were there positive consequences? If so, what were they? How were they achieved?

Ask the students to consider and discuss what seemed realistic about the activities and what did not. For example, sometimes development can take place that enhances the area for some kinds of wildlife. Often, however, it will be the same kinds of wildlife that were in the area before development. Planners and developers can sometimes add to the vegetation in an area, creating additional shelter and food for some kinds of wildlife, and make water sources available under some conditions, if there is insufficient water.

8. Ask the students to summarize some of the possible impacts on wildlife from human activities like development. Are there places in the community where wildlife habitat has been lost by human development? Are there places where wildlife habitat has been enhanced by human activity? What choices, if any, are there when developing previously undeveloped areas? What trade-offs are involved, for example, in developing vacant areas in communities rather than undeveloped areas outside communities. If development does take place, what kinds of actions can people take to minimize the negative consequences on wildlife and vegetation.

Roger A. Hill

Conservation Update

Turkey Production Mostly Unchanged From 1998

Although the number of wild turkeys per flock and the poults per hen declined slightly in 1999, the overall turkey production remained basically unchanged from last year, according to the 1999 wild turkey brood survey.

"Iowa's 1999 summer wild turkey brood survey showed turkey production to be similar to last year," said Dale Garner, DNR forest wildlife research biologist. "Although both the average number of poults per hen and the number of turkeys per flock decreased slightly over 1998 statewide estimates, the percentage of hens with broods increased slightly."

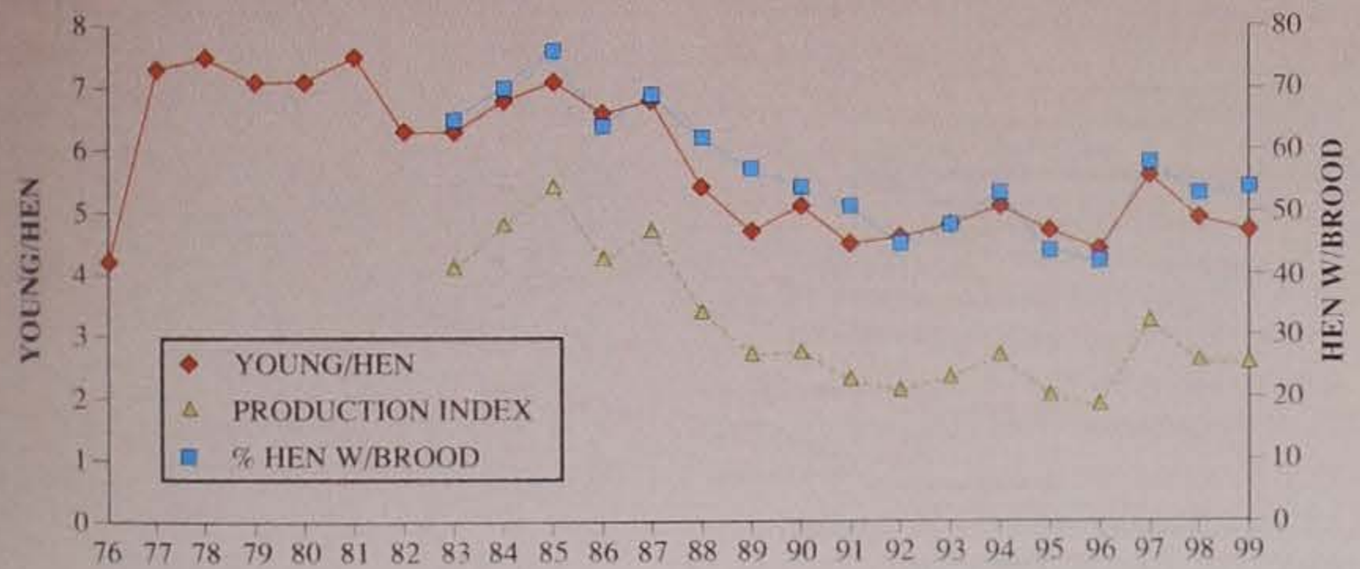
The production index, which combines the poults per hen and the percent of hens with a brood, also decreased slightly from 1998 (see below). Overall however, 1999 values were relatively unchanged when compared to the statewide average for the past five years (see table below).

Although regional data are highly variable, it appears the northwest portion of the state had higher productivity than the remainder of the state. North-central and northeast Iowa had the poorest production in 1999 (Table 1; Table 2).

Less than ideal weather conditions for nesting throughout much of the state contributed to lower production this past spring.

"Although more than half of the hens were observed with brood, survival of poults was poor, evident by the low numbers of poults per hen in some areas," Garner said. "Despite a slight drop in production, wild turkey populations remain strong throughout most of the state."

Figure 1: Wild Turkey Brood Survey Results



Winter BOW Workshop planned For January

The DNR's Becoming an Outdoors-Woman (BOW) winter workshop, a popular addition to the DNR's outdoor education program, will once again be offered this winter.

"Due to the immense popularity of the first two winter workshops, we are bringing it back again this year," said Gloria Baker, outdoor skills coordinator for the Iowa DNR.

The workshop will be held Jan. 21-23 at the Springbrook Education Center in Guthrie Center. Baker said the workshops will feature activities such as dog sledding, cross-country skiing, snowshoeing, snowmobiling and winter camping. Seminars will also be held on woodworking for wildlife, basic firearms and gun care, turkey hunting, wildlife identification, predator calling, fur harvesting, falconry, game care and outdoor cooking.

Becoming An Outdoors-Woman teaches outdoor skills associated with hunting and fishing, but it can also be a valuable learning tool for other outdoor pursuits. It is designed to give women age 18 and older an opportunity to learn about outdoor activities in a supportive and nonthreatening environment.

For registration material, contact Baker at the Springbrook Education Center, 2473 160th Road, Guthrie Center, Iowa 50115, or by calling 515-747-8383. Cost of the program is $125 and includes meals, lodging and all materials.

Table 1: 1999 Turkey Brood Survey Results

REGION	NUMBER OF REPORTS	TURKEYS PER FLOCK (% increase or decrease)	POULTS PER HEN (% increase or decrease)	PERENTAGE OF HENS WITH BROOD
Northeast	411	10.1 (-16.5)	3.9 (-22.9)	52 (-5.8)
South	805	10.3 (-3.6)	5.0 (-3.1)	60 (+26.1)
Central	62	8.5 (-16.2)	3.8 (-19.5)	54 (+25.6)
West	188	13.7 (+3)	4.7 (-8.2)	60 (+18.6)
East Central	517	10.3 (-6.0)	5.0 (+7.8)	49 (-5.4)
Northwest	45	13.1 (+26.9)	6.9 (+73.4)	57 (+14.5)
North Central	86	6.5 (-32.0)	3.1 (-36.5)	35 (-32.2)
Statewide	2,114	10.5 (-6.7)	4.7 (-4.9)	54 (+8.0)

Conservation Update

Hunters May Have to Work Harder For Their Deer

Although 1999 aerial and spotlight surveys showed strong deer populations across much of the state, hunters may have to work a little harder to find Iowa's most popular big game animal, predicts Willie Suchy, DNR deer biologist.

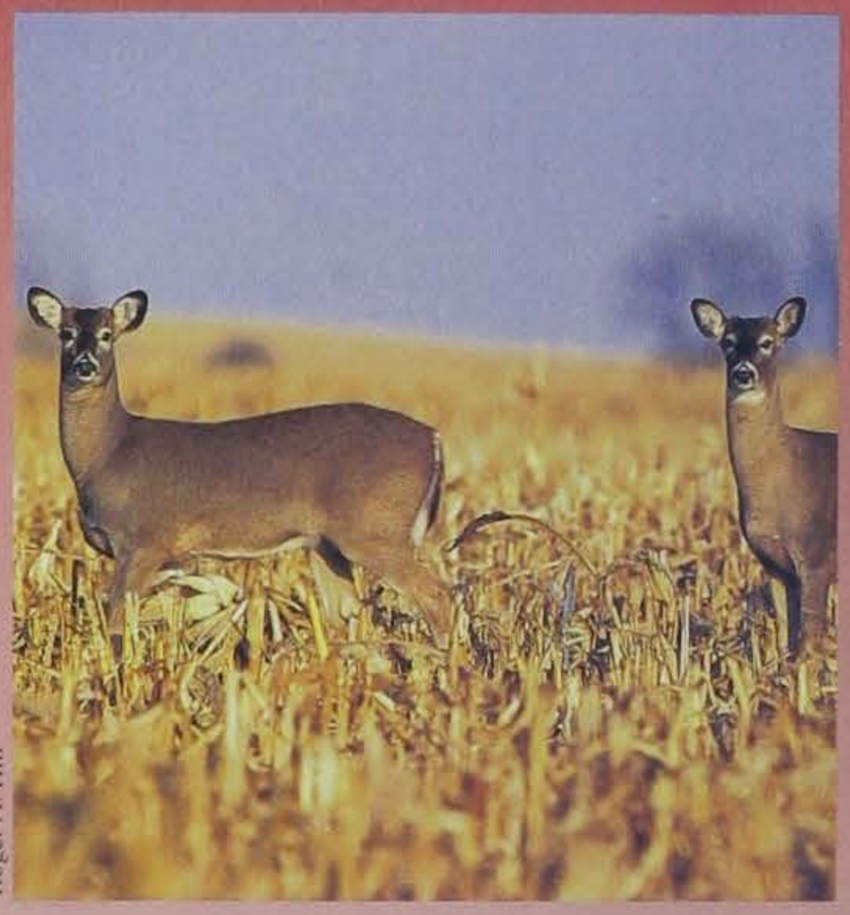
After a record harvest in 1997, the number of deer harvested last season was down about 6,000 despite a record number of licenses being issued.

"The main reason for the decline was lower success rates in almost all seasons," Suchy said. "Since the weather was pretty good last fall, this indicates there were fewer deer available."

Suchy also noted a decline in 1998 roadkill figures, further supporting the prediction hunters may have to work a little harder this year. This despite the fact aerial counts last winter and spotlight counts this spring remained the same.

About 140,000 hunters will take to the field during the two shotgun seasons.

"I expect about 90,000 hunters during the first season where success rates were about 70 percent in 1998. I expect 45 percent of the deer taken will be antlered bucks," Suchy said. "Second season hunters will have slightly lower success rates, although last year nearly 64 percent reportedly tagged a deer. About 50 percent of the deer taken will be does."



Roger A. Hill

Regulations will be identical to the past two years and hunters can take deer of either sex in both seasons. Antlerless licenses for the special late season will also offer some hunters another chance to add venison to the freezer. Antlerless licenses for the 20-county area in southern Iowa will be available through Jan. 3, 2000, or until quotas are filled, whichever comes first.

Preseason practice shooting, whether it be with the bow or firearm, will pay dividends this fall and winter, Suchy added.

"I'd recommend hunters take their firearm or bow and practice with it before they go into the field," Suchy said. "First, its the ethical thing to do since it will undoubtedly reduce the chances that someone fails to make a clean first shot. Second, every year I hear from someone who misses a nice deer and then finds out that their gun was shooting a bit off. A bit of prevention is well worth the effort."

Suchy also said hunters can improve hunting on the land they hunt by making a conscious decision to harvest more does and larger bucks and passing on the younger bucks.

Elinor Bedell State Park

Construction To Begin Spring of 2000 at Iowa's Newest Park

Engineering design plans are underway for the roads, trails, campgrounds, shelter/rest room building and interpretive exhibits at Elinor Bedell State Park, Iowa's newest state recreational and natural area located in northwest Iowa.

"Many of the planned improvements will begin in the spring of 2000," according to Mike Carrier, DNR division administrator for the Parks, Recreation and Preserves Division.

The 80-acre undeveloped shoreline located on East Lake Okoboji was donated to the DNR in 1998 by former U.S. Rep. Berkley Bedell in honor of his wife, Elinor. Bedell represented northwest Iowa for 12 years.

"Elinor Bedell State Park will promote the appreciation and enjoyment of prairie, wetland and oak savanna landscapes that were once found along the shores of Iowa's Great Lakes," said Keven Arrowsmith, DNR information specialist. "An extensive trail system throughout the park will allow visitors to take advantage of interpretive, educational and recreational opportunities."

Development plans include the construction of the entrance road and parking lot; modern rest room, picnic area and playground; hiking trails; wetland enhancement and creation of new wetlands; wildlife viewing blinds; lake observation platform; interpretive signs; courtesy docks; primitive tent campground; modern campground with electricity, water and sewer hookups; and prairie, tree and shrub plantings. According to DNR officials, construction of these and other features should be completed during the 2000 construction season.

Shoreline fishing and waterfowl hunting will continue, as in the past, on land below the ordinary high-water line of East Lake.

Record Deer Rack Correction

The 1998 Record Deer Racks published in the September/October 1999 *Iowa Conservationist* incorrectly listed Daniel Kauffman's whitetail entry as the top bow-typical. It is a top 10 muzzleloader-nontypical. Garry Rasmussen's entry, scoring 186 1/8, should be added to the all-time top 10 bow typical category.

WINTER SAFETY

Know The Ice

Although it's too early to break out the icehouses and augers, it's not too early to start thinking about safety on the ice.

First ice signals the start of the ice fishing season, and once that happens, communities of shacks, shanties and five-gallon buckets will sprout up all over Iowa's lakes and ponds. Winter's first freeze-over does not mean the ice is safe for recreation. It takes prolonged freezing temperatures to produce solid ice, and even then, some ice may still not be safe. Anglers need to be cautious when out on any ice, but even more so during early and late ice.

Sonny Satre, DNR recreational safety coordinator, said those who venture out onto frozen waters should recognize the types and characteristics of ice, and the maximum load capacity of each. Many factors affect the strength and thickness of ice. Satre said slush ice, for example, is half as strong as clear, blue ice. Slush shows weakening of the ice and should be considered a danger sign. Clear, blue river ice is 15 percent weaker than pond or lake ice. New ice is usually stronger than old ice because the bond between the ice crystals decay with age. Dark or honeycombed ice indicates deterioration and should be avoided. Even if a cold snap halts the deterioration process, dark or honeycombed ice will never refreeze to its original strength.

Light winds accelerate formation of ice, while strong winds force water from beneath the ice and can decay the edges. Snow can insulate ice and keep it strong. It can also insulate it to keep in from freezing, or hide cracked, weak or open-water areas. Areas covered by snow should be approached cautiously. Continuous travel over the same area of ice will also weaken it. Lakes with moving water, whether it be from an inlet canal, springs, groundwater seepage or an outlet, should be viewed with skepticism. Water movement, no matter how light, retards freezing and can leave hard-to-detect thin spots.

Satre said ice forms at different rates in different places and can be a foot thick in one spot and an inch thick in another. According to ice strength figures compiled by the Lumbermen's Safety Association and other sources, 2-3 inches of clear, blue ice will support one person walking. General use such as ice fishing or skiing requires at least 4 inches of good ice, 5 inches for snowmobiling. At least 8 inches of solid ice is needed to support a car or light truck, while 10 inches is the minimum thickness for medium trucks.

Because various factors can affect the strength and thickness of ice, Satre warns never assume ice is safe and always test thickness with an auger or spud bar.

Snowmobile Safety

For many Iowans, snow means curling up on the couch with a good book or football game on TV and watching the snow pile up outside. But to an ever-growing population of hearty Iowans, snow means climbing aboard a snowmobile and seeing the Iowa countryside from a little different perspective.

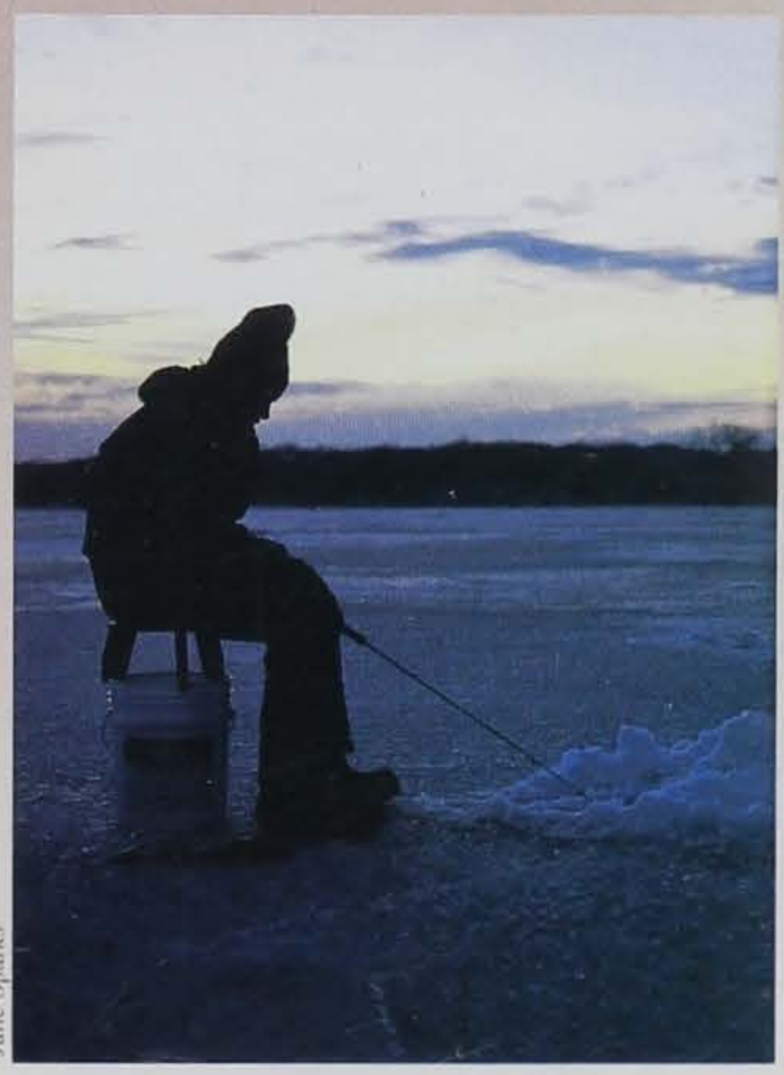
As with virtually any activity, though, accidents can happen. And when those accidents involve a motor vehicle, the consequences can be amplified — and sometimes deadly. Heavier snowfall typically results in higher snowmobile activity, thereby increasing the risk of accidents.

"When you have a lot of snow, you have more accidents," according to Sonny Satre, recreation safety coordinator for the DNR.

Statistics for the 1998 season, based on the calendar year from Jan. 1 to Dec. 31, showed 38 snowmobile accidents last year. Of those, 31 involved personal injuries and four were fatal.

Satre said the most effective way to reduce the risk of snowmobile accidents is to follow a few simple safety precautions. Satre said snowmobilers should be familiar with the terrain and their machines; obey all snowmobile laws; signal driving intentions; watch for other snowmobiles; wear sensible clothing, helmet and eye protection; use common sense; wear a floatation device when operating near water; avoid alcohol before and during operation; and refrain from driving on highways except as authorized.

Satre recommended operators take advantage of Iowa's 5,000 miles of groomed and signed trails, and always operate with at least one partner in case of accidents. Satre also noted those age 12 to 17 are required to successfully complete a snowmobile operators safety course before operating on public lands. Courses are offered by the DNR November through March of each year.



Julie Sparks

Conservation Update

Tussey Non-Typical

by Larry Zach

Old Rivals II, featured on the cover of this issue, is the second painting in the Zach "Old Rivals" series. It is based on a massive nontypical whitetail buck I was fortunate enough to observe and videotape in the fall of 1994.

A number of hunters also knew where the big buck was feeding. Because of intense pressure, the wise, old buck went nocturnal, not coming out to feed until well after dark.

Most hunters either shot a different deer or simply gave up, but one patient hunter, Jeff Tussey, persisted. Hunting every evening the last two weeks of Iowa's late muzzleloader season, Jeff's opportunity finally came on the second to last day of the season. As Jeff watched two other deer feeding in an alfalfa field in front of him, the big non-typical came out of the cover in good shooting light. A well-placed shot dropped the massive non-typical. I did a pencil study called Tussey Non-Typical showing a front view of the one-of-a-kind rack the non-typical carried when he was shot.

The rival buck in Old Rivals II was a wide-racked, 14-point with double brow tines. This buck, unfortunately, was apparently taken by a poacher. Old Rivals II includes more than a dozen other rivalries in addition to the bucks and old pick-ups.

For information on this or other Zach wildlife art prints, contact your local fine art gallery or White Oak Publishing, 901 SE Trilein Drive, Ankeny, Iowa 50021, phone (515) 964-1570.

Effort Underway To Encourage More Conservation Tillage

A recent survey indicates that efforts to protect soil and water resources in Iowa may be waning.

The survey, conducted by the Natural Resources Conservation Service (NRCS) and Conservation Technology Information Center (CTIC) shows a 12 percent decrease in total conservation tillage methods and a 25 percent drop in the use of no-till from 1997 to 1998 in Iowa. A subsequent study conducted by Monsanto, Inc., in 1999 reveals no statistical change from 1998 to 1999.

The recent survey results are particularly disturbing because soil erosion is still considered to have the biggest negative impact on water quality in Iowa.

As a result of the recent trend away from conservation tillage practices, a new partnership, the Iowa Residue Management Partnership (IRMP), has been formed to address the concerns. IRMP members include Conservation Districts of Iowa, Inc., Conservation Technology Information Center, the Division of Soil Conservation for the Iowa Department of Agriculture and Land Stewardship, Iowa Chapter of the Soil & Water Conservation Society, Iowa Department of Natural Resources, Iowa Farm Bureau Federation, Iowa State University, Monsanto, Inc., Novartis Crop Protection, Inc., Soil & Water Conservation Society, Inc., and the NRCS.

Survey results show the drop in no-till farming was a statewide trend with 77 of the 99 counties showing a drop and 44 having a decline of 25 percent or more. There were 22 counties where no-till increased and the counties with the highest percentage of no-till acres remains in the southern portion of the state.

Overall, about 51 percent of the corn and soybeans produced in 1998 used conservation tillage systems with at least 30 percent of the soil covered with residues after planting in Iowa.

The goal of the IRMP is to encourage Iowa farmers to leave more residue in fields this fall by encouraging them to consider economic and environmental implications of fall tillage. The group is currently developing a producer survey to determine why producers have discontinued or interrupted no-till farming and what may encourage them to renew the practice in their operations. The survey results will be used to develop a program to address tillage issues statewide in 2000 and beyond.

Conservation Update

Iowa Conservation Education Council

"Providing educational pathways to enable Iowans to make responsible environmental decisions"

The Iowa Conservation Education Council (ICEC) consists of individuals, organizations and agencies interested in promoting conservation education in Iowa. Members are educators working in a variety of positions throughout the state.

Mission Statement

The ICEC ensures a healthy environment in Iowa by improving environmental literacy; uses innovative educational methods and strategies; develops diverse partnerships; facilitates networking; provides access to information, research and trends; and embraces a balanced perspective on environmental issues.

The Iowa Conservation Education Council consists of individuals, organizations and agencies interested in promoting conservation education in Iowa. Members are educators working in a variety of positions throughout the state.

ICEC Has Something For Everyone

***Leadership** — As the oldest conservation and environmental education organization in Iowa and one of the largest in the nation, the ICEC has provided leadership for more than four decades. The ICEC brings in partners and assists many groups and agencies interested in environmental education. It has provided leadership for the Governor's Conference on Environmental Education, regional and national workshops and environmental education forums, statewide Earth Day campaigns and in awarding mini-grants.

***Workshops** — The ICEC sponsors and cosponsors numerous workshops throughout the state. These workshops feature teaching techniques, new curricula, information about the environment, conservation issues and more.

***Grants** — The ICEC assists educators through its grants program.

***Publications** — *Pathways to Education*, the quarterly newsletter of the Council, contains news of upcoming workshops and program ideas and other issues relevant to conservation and to educators. The ICEC also produces educational materials and enables educators to find additional resources.

***Awards** — Through its awards program the ICEC acknowledges classroom teachers, naturalists, business leaders, youth, nonprofit groups and other people and programs dedicated to environmental education.

***Membership Involvement** — The ICEC provides numerous challenging and exciting opportunities. Members may plan, attend and participate at workshops, write an article for *Pathways to Education* and become involved with specific committees.

For more information, contact:

Wendy Zohrer
ICEC, PO Box 65534, West Des Moines, Iowa 50265 (515) 221-9893; WZor@aol.com

Dan Cohen
Chairman, Buchanan County Conservation Board/Fontana Park, 1883 125th St., Hazelton, Iowa 50641, (319) 636-2617; bccb@trxinc.com

Kris Fisher
Treasurer, ICEC, P.O. Box 233, Boone, Iowa 50036.

Upcoming NRC and EPC Meetings

The dates and locations have been set for the following meetings of the Natural Resource Commission and Environmental Protection Commission of the Iowa Department of Natural Resources.

Agendas for these meetings are set approximately 10 days prior to the scheduled meeting date. For additional information, contact the Iowa Department of Natural Resources, Wallace State Office Building, Des Moines, Iowa 50319-0034.

Natural Resource Commission:

— November 10
Des Moines
— December 9
Des Moines

Environmental Protection Commission:

— November 15
Des Moines
— December 20
Des Moines

Warden's Diary

"The Extreme Season"

Faithful readers may have noticed I have never written anything about deer season. There is a very good reason for this.

Like the rest of the officers, by the time December — or "Deercember" as one of my colleagues calls it — is over, I'm usually so burned out from the busy season, I shy away from the word processor. And it's not just me. Fellow conservation officer Mark Edwards once noted, after a season of covering two counties, a backlog of calls, not seeing your family for about 30 days, and elevated blood pressure, "Well, I wonder how may years that took off my life!"

Ask any conservation officer and he or she will tell you deer season is one of our busiest times of the year. We get more calls during the firearm deer seasons than any other hunting season.

Why?

First, it always seems like it's a season of extremes, beginning with the weather. Last year it seemed nature went haywire. El Nino, storms, floods, earthquakes, tornadoes, Iowa State beats Iowa. Nature just seemed out of kilter. Last year's first shotgun deer hunting season was the first time I can remember seeing deer hunters in December wearing T-shirts — and sweating to boot.

Contrast that with the second season, which I considered more typical of deer season. There was cold, the kind of cold that hits you in the face the second you step out of the truck. Snow and cold concentrate deer more, but it makes hunting a little harder when you are almost frozen solid! It also makes for more difficult conditions to work in. I have witnessed more than one deer season where we laughed at each officer who slid off the ice into the ditch. It's real funny — until you're the one on the other end of the tow rope.

So it seems, sometimes extreme conditions bring out extreme measures. Although much of our hunting season work involves simple license checks, there are times when the situation requires substantially more time and effort to promote and enforce Iowa's hunting regulations.

For example, deer hunters usually hunt in groups, some of them quite large. Typically, some in the group drive the deer, and some stand post to shoot the deer. Finding the hunters isn't a problem. That's actually quite easy. One of my coworkers was asked, "How do you know where to work and to find hunters?"

"It's simple nowadays," he answered. "I just park next to a convenience store and follow them when they leave."

Well, not quite. A lot of times we use aircraft to find groups of hunters. The pilot can cover a lot more ground more efficiently than we can by ourselves. It's interesting how one aircraft can suddenly become a whole squadron. I talked to a group of hunters which, as in this case, had been located by the aircraft crew and reported to ground officers.

"Yeah, we saw your airplane," they said. "We knew you'd be around to check us." The only thing was we hadn't had an airplane up all year. A private aircraft had simply flown over them. I'm convinced that for some groups during the deer season, United Airlines becomes our biggest ally, as they are convinced every airplane flying over is the DNR.

In the case of large deer hunting groups, it takes a long time to check each person individually. I know this makes for impatient hunters on the part of some, but it can't be helped. We can only talk to one person at a time, we try to be thorough, and we don't allow ourselves to be distracted.

Occasionally we run into some, who in the heat of the moment, momentarily lose their sense of good judgement. Like the time I witnessed a group hunting out of the back of a pickup. I stopped them, and as I wrote the ticket, I asked one of them, "What in the world were you thinking about?"

"I don't know, Chuck, " he answered. "Guess I wasn't thinking." I think he knew I didn't take the incident personally. But, I shuddered at what could have happened when someone in a large group of hunters is thinking only of his target, and not of what's going on around him.

Finally, there are the ones who try to play games with deer tags. Trying to get the deer home without tagging it. Carrying someone else's tag. We saw the value of the cell phone one time, when Bob Mullen came across a guy who had tagged a deer with his wife's tag. But his wife was nowhere to be seen. "Oh yeah, she shot it, tagged it, and went home." Hmmm. Bob asked the guy for his phone number and called the residence on a cell phone. The man's wife answered telling us, "No, I don't have any deer licenses, and no, I don't hunt deer!" He stuck to his story all the way to the trial where it ended with the judge not buying it either.

So, I know this season will have its share of frustrations too. Every year my biggest hope is for hunters to be safe. Think about what you're doing. Be sure of your target and it's background. Respect private property. Wear blaze orange. When in doubt, wear more blaze orange. One of my most horrifying moments was when I bailed out my truck in a foot chase across a field. After a few hundred yards, I realized I was in the middle of a field being hunted, and my orange was back in the truck. The most reassuring thing I heard was the pilot over my head saying over the radio, "Don't worry, I've got my eye on you."

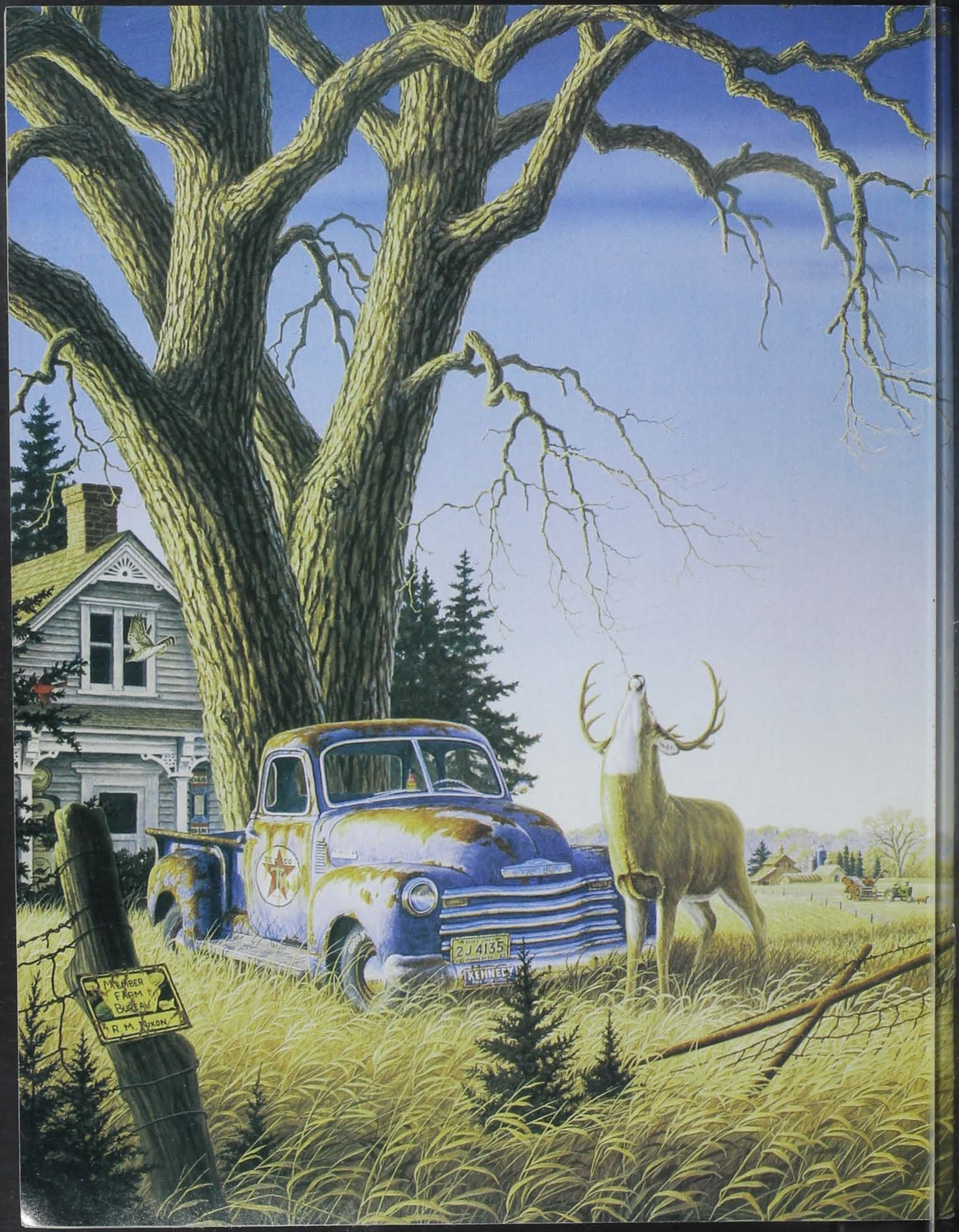
We'll have our eyes on too. Like Jim Judas, my retired mentor always told me, "You can't be everywhere. Just do the best you can."

by Chuck Humeston

Parting Glance

Roger A. Hill

"Yikes!"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